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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

ENVIRONMENTAL PROTECTION
AGENCY-REGION VII
REGIONAL HEARING CLERK

IN THE MATTER OF:

St. Francois County Mining Area

St. Francois County, Missouri

Docket No. CERCLA-07-2004-0167

THE DOE RUN RESOURCES
CORPORATION,

Respondent.

ADMINISTRATIVE ORDER ON
CONSENT FOR REMOVAL ACTION

Proceeding Under Sections 104, 106(a), 107
and 122 of the Comprehensive
Environmental Response, Compensation,
and Liability Act, as amended, 42 U.S.C. §§
9604, 9606(a), 9607 and 9622

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I. JURISDICTION AND GENERAL PROVISIONS

1. This Administrative Order on Consent ("Order") is entered into voluntarily by the United States Environmental Protection Agency ("EPA") and The Doe Run Resources Corporation ("Respondent"). This Order provides for the performance of a removal action by Respondent and the reimbursement of certain response costs incurred by the United States at or in connection with the St. Francois County Mining Area located in St. Francois County, Missouri.
2. This Order is issued under the authority vested in the President of the United States by Sections 104, 106(a), 107 and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, 42 U.S.C. §§ 9604, 9606(a), 9607 and 9622, as amended ("CERCLA").
3. EPA has notified the State of Missouri (the "State") of this action pursuant to Section 106(a) of CERCLA, 42 U.S.C. § 9606(a).
4. EPA and Respondent recognize that this Order has been negotiated in good faith and that the actions undertaken by Respondent in accordance with this Order do not constitute an admission of any liability. Respondent does not admit, and retains the right to controvert in any subsequent proceedings other than proceedings to implement or enforce this Order, the validity of the findings of facts, conclusions of law, and determinations in Sections IV and V of this Order. Respondent agrees to comply with and be bound by the terms of this Order and further agrees that it will not contest the basis or validity of this Order or its terms.
5. Upon the Effective Date of this Order, Respondent's blood lead testing and control, soil testing, soil removal, and reporting obligations under Administrative Order on Consent, Docket No. CERCLA-7-2000-0015 (the "Interim Action") shall be deemed completed. Respondent remains obligated, pursuant to the Interim Action, to complete certain continuing obligations (e.g. record retention, etc.) and payment of Oversight Costs incurred and paid by the United States prior to the Effective Date of this Order.

II. PARTIES BOUND

6. This Order applies to and is binding upon EPA and upon Respondent and their successors and assigns. Any change in ownership or corporate status of Respondent including, but not limited to, any transfer of assets or real or personal property shall not alter Respondent's responsibilities under this Order.
7. Respondent shall ensure that its contractors, subcontractors, and representatives receive a copy of this Order and comply with this Order. Respondent shall be responsible for any noncompliance with this Order.

III. DEFINITIONS

8. Unless otherwise expressly provided herein, terms used in this Order which are defined in CERCLA or in regulations promulgated under CERCLA shall have the meaning assigned to them in CERCLA or in such regulations. Whenever terms listed below are used in this Order or in the appendices attached hereto and incorporated hereunder, the following definitions shall apply:

a. "Action Memorandum" shall mean the EPA Action Memorandum for the St. Francois County Mining Area, St. Francois County, Missouri, signed on March 12, 1998, by the Regional Administrator, EPA Region VII, or his/her delegate, as amended by EPA Region VII in March 2000, and further amended by EPA Region VII in March 2004, and all attachments thereto. The "Action Memorandum is set forth in Attachment 2.

b. "CERCLA" shall mean the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. §§ 9601, *et seq.*

c. "Day" shall mean a calendar day. In computing any period of time under this Order, where the last day would fall on a Saturday, Sunday, or Federal holiday, the period shall run until the close of business of the next working day.

d. "Effective Date" shall be the effective date of this Order as provided in Section XXX.

e. "Elevated Blood Lead" or "EBL" shall mean a measured blood lead level at or exceeding 10 micrograms per deciliter ($\mu\text{g}/\text{dl}$) as reported by a Clinical Laboratory Improvement Amendments of 1988 (CLIA) -certified laboratory.

f. "EPA" shall mean the United States Environmental Protection Agency and any successor departments or agencies of the United States.

g. "Future Response Costs" shall mean all costs incurred on or after the Effective Date of this Order, including, but not limited to, direct and indirect costs, that the United States incurs in reviewing or developing plans, reports and other items pursuant to this Order, verifying the Work, or otherwise implementing, overseeing, or enforcing this Order, including but not limited to, payroll costs, contractor costs, travel costs, laboratory costs, and costs incurred by EPA in the process of assisting Respondent to gain access. Future Response Costs shall also include all costs, including direct and indirect costs incurred by the United States prior to the Effective Date but paid after that date.

h. "Interest" shall mean interest at the rate specified for interest on investments of the EPA Hazardous Substance Superfund established by 26 U.S.C. § 9507, compounded annually on October 1 of each year, in accordance with 42 U.S.C. § 9607(a). The applicable rate

of interest shall be the rate in effect at the time the interest accrues. The rate of interest is subject to change on October 1 of each year.

i. "MDNR" shall mean the Missouri Department of Natural Resources and any successor departments or agencies of the State.

j. "National Contingency Plan" or "NCP" shall mean the National Oil and Hazardous Substances Pollution Contingency Plan promulgated pursuant to Section 105 of CERCLA, 42 U.S.C. § 9605, codified at 40 C.F.R. Part 300, and any amendments thereto.

k. "Order" shall mean this Administrative Order on Consent and all attachments hereto. In the event of conflict between this Order and any attachment, this Order shall control.

l. "Paragraph" shall mean a portion of this Order identified by an Arabic numeral.

m. "Parties" shall mean EPA and Respondent.

n. "RCRA" shall mean the Solid Waste Disposal Act, as amended, 42 U.S.C. §§ 6901, *et seq.* (also known as the Resource Conservation and Recovery Act).

o. "Respondent" shall mean The Doe Run Resources Corporation.

p. "Section" shall mean a portion of this Order identified by a Roman numeral.

q. "State" shall mean the State of Missouri.

r. "Statement of Work" or "SOW" shall mean the statement of work for implementation of the removal action, as set forth in Attachment 1 to this Order, and any modifications made thereto in accordance with this Order.

s. "Waste Material" shall mean 1) any "hazardous substance" under Section 101(14) of CERCLA, 42 U.S.C. § 9601(14); 2) any pollutant or contaminant under Section 101(33) of CERCLA, 42 U.S.C. § 9601(33); 3) any "solid waste" under Section 1004(27) of RCRA, 42 U.S.C. § 6903(27); and 4) any "hazardous waste" under Section 1004(5) of RCRA, 42 U.S.C. § 6903(5).

t. "Work" shall mean all activities Respondent is required to perform under this Order.

IV. FINDINGS OF FACT

10. The first recorded lead mining in St. Francois County occurred in the early 1700s. Mining operations were continuous in the area from the mid-1700s until the mid-1970s. Over the years, the mines, milling operations, and associated facilities in the county became known as Missouri's "Old Lead Belt".

11. Over 8 million tons of lead concentrate were produced in the Old Lead Belt during the period from 1864 to 1970. The by-product of the mining process resulted in the production of mine waste materials called chat and tailings. An estimated 250 million tons of chat and tailings were generated over this 100-plus years of mining operations.

12. Chat is fine to coarse dolomite rock fragments produced during the early milling process in which density separation was used to separate the ore. Chat was transported mechanically by conveyor and disposed of in large piles at heights generally greater than 100 feet above the surrounding topography.

13. Tailings were produced by a wet separation process. Sometimes referred to as fines, tailings typically involve smaller fragment fines, silts, silty sands, and clay. The tailings were disposed of by hydraulically depositing them into impoundments known as tailings ponds.

14. In the St. Francois County Mining Area, there are six distinct chat pile and tailings pond areas: National, Elvins, Bonne Terre, Federal, Desloge, and Leadwood, which are the subject of this Order. These areas are shown on the map which is attached to this Consent Order as Attachment 3. Following is an estimate of the acreage covered by the chat piles and tailings ponds in these eight areas:

<u>Area</u>	<u>Chat Pile Acres</u>	<u>Tailings Pond Acres</u>
National	44	108
Elvins	72	77
Bonne Terre	39	306
Federal	43	1005
Desloge	95	275
Leadwood	35	528

15. The physical and chemical nature of the mine waste materials at these areas is similar. Analytical results from samples taken from the mine waste materials show that the materials contain lead, zinc, and cadmium. Following are the mean and maximum

concentrations of lead, cadmium, and zinc, in $\mu\text{g/g}$, which have been found in samples of the waste materials from the six areas:

<u>Area</u>	<u>Lead</u>		<u>Cadmium</u>		<u>Zinc</u>	
	<u>Mean</u>	<u>Max</u>	<u>Mean</u>	<u>Max</u>	<u>Mean</u>	<u>Max</u>
National	3508	9283	7	87	457	5055
Elvins	4392	11600	103	202	5482	11900
Bonne Terre	3515	7010	13	29	541	967
Federal	885	210000	6	170	29	34100
Desloge	2215	13000	22	270	1044	13000
Leadwood	2444	17000	267	1870	5009	25800

16. Numerous environmental investigations have been conducted in the St. Francois County Mining Area in recent years. These investigations show that mine waste materials containing lead, cadmium, and zinc have migrated from the eight disposal areas via wind erosion, bank erosion, storm water runoff, and leachate. As a result, some surface waters, sediments, and soils in the area contain elevated levels of lead, cadmium, and zinc.

17. In April 1995, Fluor Daniel Environmental Services on behalf of The Doe Run Resources Corporation prepared an "Initial Remedial Investigation Report" which summarizes the history of mining activities in the St. Francois County Mining Area, describes the eight chat pile and tailings pond areas in detail, and compiles and evaluates the environmental data which has been collected to date in the St. Francois County Mining Area.

18. In May 1997, the Missouri Department of Health (MDOH) released a draft Lead Exposure Study of children in the Old Lead Belt. The MDOH Study included sampling children's blood, sampling environmental media such as soil and dust, and questioning residents about their lifestyle as it related to lead exposure. The Study compared the information in the Old Lead Belt of St. Francois County to information collected during the Study on a control area, Salem, Missouri, located outside the area of concern.

19. The results of the Study revealed lead concentrations in residential yards located near the mine waste areas in excess of 10,000 mg/kg. In the Old Lead Belt, about 17% of the children tested showed a blood lead level of more than 10 $\mu\text{g/dl}$ whereas only about 3% of the children in Salem were elevated. According to the U.S. Centers for Disease Control and Prevention (CDC), a blood lead concentration of 10 $\mu\text{g/dl}$ presents a health concern. The Missouri Department of Health and Senior Services reported that the 2002 calendar year blood lead testing data showed that 9% of the children tested in St. Francois County showed a blood lead level of more than 10 $\mu\text{g/dl}$.

20. A study concerning St. Francois County entitled "Source Contribution of Lead in House Dust From a Lead Mining Waste Superfund Site" published in 1998 identified that the sources of lead in house dust was 23% from lead paint and 21% from mining waste.

21. Concurrently with the MDOH Study, EPA released its strategy to reduce the health impacts in the area from lead that is present in the environment as a result of mining-related activities. The three key aspects of the strategy are source control, long term remedial control, and an interim program to reduce currently elevated blood-lead levels. The interim program consists of outreach to test as many children as possible followed by intervention to reduce any elevated blood-lead levels, as well as soil testing and removal.

22. In April 2000, EPA and The Doe Run Resources Corporation voluntarily entered into an Administrative Order on Consent for the St. Francois County Mining Area requiring The Doe Run Resources Corporation to implement a soil testing and removal program and a blood lead testing and control program within the St. Francois County Mining Area. The program will expire in April 2004.

23. In March 2002, The Doe Run Resources Corporation submitted a Remedial Investigation Report which compiles and evaluates the environmental data which has been collected to date in the St. Francois County Mining Area.

24. Nearby residents may face actual and/or potential exposure to lead from the mine waste via ingestion, skin contact, and inhalation. Exposure to lead can increase the risk of future adverse health effects such as damage to the central nervous system, peripheral nervous system, and kidney and blood disorders. Young children are particularly susceptible to adverse health effects due to exposure to lead.

25. Contamination by, and exposure to, cadmium and zinc are being addressed in other investigation and response actions.

26. The Doe Run Resources Corporation is a corporate successor of St. Joe Lead Company, who conducted mining operations in the St. Francois County area and who disposed of mine wastes containing lead, zinc, and cadmium at, and/or who currently owns portions of, each of the six mine waste areas described above.

27. The Doe Run Resources Corporation is a New York Corporation registered to do business in the State of Missouri.

28. Other persons who may be current owners, operators, or successors to operators who disposed of mine waste containing lead, zinc, and cadmium in the St. Francois County area, but who are not parties to this Order, include ASARCO, Inc.; NL Industries, Inc.; the State of Missouri Division of State Parks; the St. Francois County Environmental Corporation; and

parties who purchased or removed chat or other mine wastes and placed it on land in the St. Francois County Mining Area or otherwise used it for commercial purposes.

29. Much of the property comprising the six major mine waste areas, and adjacent properties to which contaminants may have migrated, is owned by persons other than Respondent. Among these persons are individuals, profit corporations, not-for-profit corporations, and government entities. Access to some of these properties will be necessary in order to complete the work required by this Order.

V. CONCLUSIONS OF LAW AND DETERMINATIONS

30. Based on the Findings of Fact set forth above, and the Administrative Record supporting this removal action, EPA has determined that:

a. Each of the six mine waste areas identified in the Findings of Fact herein is a "facility" as defined by Section 101(9) of CERCLA, 42 U.S.C. § 9601(9).

b. Lead is found at each of the six mine waste areas identified in the Findings of Fact herein and is a "hazardous substance" as defined by Section 101(14) of CERCLA, 42 U.S.C. § 9601(14).

c. Respondent is a "person" as defined by Section 101(21) of CERCLA, 42 U.S.C. § 9601(21).

d. Respondent is a responsible party under Section 107(a) of CERCLA, 42 U.S.C. § 9607(a), because:

- i. Respondent is the "owner" and/or "operator" of portions of five of the six facilities, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(1) of CERCLA, 42 U.S.C. § 9607(a)(1), and/or
- ii. Respondent was the "owner" and/or "operator" of the facilities at the time of disposal of hazardous substances at the facilities, as defined by Section 101(20) of CERCLA, 42 U.S.C. § 9601(20), and within the meaning of Section 107(a)(2) of CERCLA, 42 U.S.C. § 9607(a)(2).

e. The presence of hazardous substances at the six mine waste areas or the past, present or potential migration of hazardous substances currently located at or emanating from the six mine waste areas, constitutes an actual or threatened "release" of hazardous substances from the facilities as defined by Section 101(22) of CERCLA, 42 U.S.C. § 9601(22).

f. The removal action required by this Order is necessary to protect the public health, welfare, or the environment and, if carried out in compliance with the terms of this Order, will be considered consistent with the NCP, as provided in Section 300.700(c)(3)(ii) of the NCP.

VI. ORDER

Based upon the foregoing Findings of Fact, Conclusions of Law, Determinations, and the Administrative Record for the eight mine waste piles comprising the St. Francois County Mining Area, it is hereby Ordered and Agreed that Respondents shall comply with all provisions of this Order, including, but not limited to, all attachments to this Order and all documents incorporated by reference into this Order.

VII. DESIGNATION OF CONTRACTOR AND PROJECT COORDINATORS

31. Respondent shall retain one or more contractors to perform the Work and shall notify EPA of the name(s) and qualifications of such contractor(s) within ten (10) days of the Effective Date. Respondents shall also notify EPA of the name(s) and qualification(s) of any other contractor(s) or subcontractor(s) retained to perform the Work at least ten (10) days prior to commencement of such Work. EPA retains the right to disapprove of any or all of the contractors and/or subcontractors retained by Respondent. If EPA disapproves of a selected contractor, Respondent shall retain a different contractor and shall notify EPA of that contractor's name and qualifications within fifteen (15) days of EPA's disapproval.

32. Within ten (10) days after the Effective Date, Respondents shall designate a Project Coordinator who shall be responsible for administration of all actions by Respondents required by this Order and shall submit to EPA the designated Project Coordinator's name, address, telephone number, and qualifications. To the greatest extent possible, the Project Coordinator shall be present at, or readily available by telephone, during on-site work. EPA retains the right to disapprove of the designated Project Coordinator. If EPA disapproves of the designated Project Coordinator, Respondent shall retain a different Project Coordinator and shall notify EPA of that person's name, address, telephone number, and qualifications within fifteen (15) days following EPA's disapproval. Receipt by Respondent's Project Coordinator of any notice or communication from EPA relating to this Order shall constitute receipt by Respondent.

33. EPA has designated Bruce Morrison as its Project Coordinator. Except as otherwise provided in this Order, Respondent shall direct all submissions required by this Order by certified or registered mail to Mr. Morrison at the United States Environmental Protection Agency, Region VII, 901 North 5th Street, Kansas City, Kansas 66101, telephone (913) 551-7755.

34. EPA and Respondents shall have the right, subject to Paragraphs 31 and 32, to change their respective designated Project Coordinators and contractors. Verbal notice of such change shall be provided to the other party within twenty-four (24) hours of such change and

written notice shall follow within five (5) days of such change. Such change by Respondent is subject to EPA approval as set forth in Paragraphs 31 and 32 above.

VIII. WORK TO BE PERFORMED

35. Respondents shall perform, at a minimum, all actions necessary to implement the removal action for the St. Francois County Mining Area in accordance with this Order and the attached Statement of Work ("SOW"), Attachment 1.

36. Soil Characterization.

a. At all residences where characterization of surface soils is required because of the presence of a child under 72 months of age with an elevated blood lead level, the soil characterization shall be completed within thirty (30) days of Respondent's receipt of a signed authorization by the landowner to conduct the sampling. Within thirty (30) days of receiving notification of a residence with a child under 72 months of age with an elevated blood lead level, Respondent shall obtain authorization to conduct the sampling or complete "best efforts" and submit notice and documentation pursuant to Section IX. For any property where (i) a child under 72 months of age with an elevated blood lead level resides; and (ii) Respondent is unable to obtain access; and (iii) EPA subsequently obtains access to the property for Respondent, Respondent shall perform the soil characterization within thirty (30) days of Respondent's receipt of notice from EPA that EPA has obtained access to the property for Respondent.

b. At any residences or child high use areas where (i) there is not a child under 72 months of age with an elevated blood lead level; and (ii) soil characterization is required pursuant to this Order and the SOW; and (iii) signed authorization from the landowner to conduct the soil characterization has not been previously requested, or "best efforts" and submission of notice and documentation pursuant to Section IX has not been completed, soil characterization shall be completed within thirty (30) days of Respondent's receipt of a signed authorization by the landowner to conduct the soil characterization. Within sixty (60) days of the Effective Date of this Order, Respondent shall obtain authorization to conduct the soil characterization or complete "best efforts" and submit notice and documentation pursuant to Section IX. For any property where (i) there is not a child under 72 months of age with an elevated blood lead level; and (ii) Respondent is unable to obtain access; and (iii) EPA subsequently obtains access to the property for Respondent, Respondent shall perform the soil characterization within thirty (30) days of Respondent's receipt of notice from EPA that EPA has obtained access to the property for Respondent.

c. For any residence or child high use areas where (i) there is not a child under 72 months of age with an elevated blood lead level; and (ii) soil characterization is required pursuant to this Order and the SOW; and (iii) "best efforts" in accordance with Section IX was previously completed and signed authorization to conduct the soil characterization was denied or the landowner failed to respond, Respondent shall submit notice and documentation pursuant to

Section IX within sixty (60) days of the Effective Date of this Order. Respondent shall perform the soil characterization within thirty (30) days of Respondent's receipt of notice from EPA that EPA has obtained access to the property for Respondent.

37. Soil Replacement.

a. At all residences where soil removal is required because of the presence of a child under 72 months of age with an elevated blood lead level, the soil removal shall be completed within thirty (30) days of Respondent's receipt of a signed authorization by the landowner to conduct the removal. Within thirty (30) days of receiving the sampling data showing soil replacement is necessary pursuant to this Order, Respondent shall obtain authorization to conduct the removal or complete "best efforts" and submit notice and documentation pursuant to Section IX. For any property where (i) a child under 72 months of age with an elevated blood lead level resides; and (ii) Respondent is unable to obtain access; and (iii) EPA subsequently obtains access to the property for Respondent, Respondent shall perform the soil removal within thirty (30) days of Respondent's receipt of notice from EPA that EPA has obtained access to the property for Respondent.

b. At any residences or child high use areas where (i) there is not a child under 72 months of age with an elevated blood lead level; and (ii) results of the soil sampling and analysis show that soil removal is required pursuant to this Order and the SOW, the soil removals shall be prioritized and completed at a rate to achieve soil replacement at a minimum of sixty (60) residences or child high use areas per year. By February 28th of each calendar year, for those residences or child high use areas prioritized for soil replacement in that calendar year, Respondent shall obtain authorization from the landowner to conduct the removal or complete "best efforts" and submit notice and documentation pursuant to Section IX. For those residences or child high use areas prioritized for soil replacement in calendar year 2004, Respondent shall obtain authorization from the landowner to conduct the removal or complete "best efforts" and submit notice and documentation pursuant to Section IX within sixty (60) days of the Effective Date of this Order.

38. Work Plan and Implementation.

a. Within thirty (30) days after the Effective Date, Respondent shall submit to EPA for approval a Work Plan for performing the removal action required by this Order and the attached SOW. The Work Plan shall provide a description of, and a schedule for, the actions required by this Order. The Work Plan shall address the new action level (400 ppm) for lead in soil and provide for yard soil sampling and replacement or treatment procedures in accordance with the Superfund Lead-Contaminated Residential Sites Handbook, OSWER 9285.7-50. The upper 3 inches of replacement yard soil shall be top soil, and have no greater than 30% clay content. All replacement soil shall have no greater than 240 ppm lead concentration.

b. EPA may approve, disapprove, require revisions to, or modify the Work Plan in whole or in part. If EPA requires revisions, Respondent shall submit a revised Work Plan within twenty (20) days of receipt of EPA's notification of the required revisions. Respondent shall implement the Work Plan as approved in writing by EPA in accordance with the schedule approved by EPA. Once approved, or approved with modifications, the Work Plan, the schedule, and any subsequent modifications shall be incorporated into and become fully enforceable under this Order.

c. Respondent shall not commence any Work except in conformance with the terms of this Order. Respondent shall not commence implementation of the Work Plan developed hereunder until receiving written EPA approval.

d. Respondent shall notify EPA at least ten (10) working days prior to performing any on-site Work pursuant to the Work Plan approved by EPA.

39. Health and Safety Plan. The Health and Safety Plan submitted by Respondent and reviewed by EPA pursuant to Administrative Order on Consent, Docket No. CERCLA-7-2000-0015, shall be followed for Work conducted under this Order.

40. Quality Assurance and Sampling.

a. The Quality Assurance Project Plan submitted by Respondent and approved by EPA pursuant to Administrative Order on Consent, Docket No. CERCLA-7-2000-0015, shall be followed for Work conducted under this Order.

b. Upon request by EPA, Respondent shall have the laboratory being used by Respondent analyze samples submitted by EPA for QA monitoring. Respondents shall provide to EPA the QA/QC procedures followed by all sampling teams and laboratories performing data collection and/or analysis.

c. Upon request by EPA, Respondent shall allow EPA or its authorized representatives to take split and/or duplicate samples. Respondent shall notify EPA not less than ten (10) days in advance of any sample collection activity, unless shorter notice is agreed to by EPA. EPA shall have the right to take any additional samples that EPA deems necessary. Upon request, EPA shall allow Respondent to take split or duplicate samples of any samples it takes as part of its oversight of Respondent's implementation of the Work.

d. Respondent shall submit to EPA, within twenty (20) days of receipt by Respondent, all analytical data collected in connection with this Order.

41. Repository. Contaminated yard soil removed pursuant to this Order shall be deposited in the St. Francois County Repository that is currently used by Respondent for contaminated yard soils, in accordance with the EPA-approved Repository Operation Manual.

42. Reporting.

a. Respondent shall submit a quarterly written progress report to EPA concerning actions undertaken pursuant to this Order, commencing ninety (90) days from the Effective Date until termination of this Order, unless otherwise directed by EPA. These reports shall describe all significant developments during the preceding period, including the actions performed and any problems encountered, analytical data received during the reporting period, and the developments anticipated during the next reporting period, including a schedule of actions to be performed, anticipated problems, planned resolutions of past or anticipated problems, a total of residences or child high use areas qualified for soil remediation under this Order, the total number of refusals to allow Respondent to conduct the soil remediation under this Order, and the total number of residences where soil remediation has been completed under this Order. The quarterly written progress report shall also include Geographical Information System (GIS) data collected during the proceeding period in an electronic format, prepared in accordance with the SOW.

b. Respondent shall submit two (2) copies of all plans, reports or other submissions required by this Order, the attached SOW, or any approved work plan. Upon request by EPA, Respondent shall submit such documents in electronic form.

43. Meetings. Respondent shall make presentations at, and participate in, meetings at the request of EPA during the planning for, and conduct of, the removal action, as is necessary in order to provide the community with information and opportunity for input.

44. Final Report. Within forty-five (45) days after completion of all Work required by this Order, Respondent shall submit for EPA review and approval a final report summarizing the actions taken to comply with this Order. The final report shall conform, at a minimum, with the requirements set forth in Section 300.165 of the NCP entitled "OSC Reports." The final report shall include a good faith estimate of total costs or a statement of actual costs incurred in complying with the Order, a listing of quantities and types of materials removed off-site or handled on-site, a discussion of removal and disposal options considered for those materials, a listing of the ultimate destination(s) of those materials, a presentation of the analytical results of all sampling and analyses performed, the total number of residences that qualified for remediation under the Order, the total number of residences where soil remediation was completed under the Order, the total number of refusals to allow soil remediation, and accompanying appendices containing all relevant documentation generated during the removal action (e.g., manifests, invoices, bills, contracts, and permits). The final report shall also include the following certification signed by a person who supervised or directed the preparation of that report:

"Under penalty of law, I certify that to the best of my knowledge, after appropriate inquiries of all relevant persons involved in the preparation of the report, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

45. Off-Site Shipments.

a. Respondent shall, prior to any off-site shipment of Waste Material from the St. Francois County Mining Area to an out-of-state waste management facility, provide written notification of such shipment of Waste Material to the appropriate state environmental official in the receiving facility's state and to EPA's Project Coordinator. However, this notification requirement shall not apply to any off-site shipments when the total volume of all such shipments will not exceed 10 cubic yards.

i. Respondent shall include in the written notification the following information: 1) the name and location of the facility to which the Waste Material is to be shipped; 2) the type and quantity of the Waste Material to be shipped; 3) the expected schedule for the shipment of the Waste Material; and 4) the method of transportation. Respondent shall notify the state in which the planned receiving facility is located of major changes in the shipment plan, such as a decision to ship the Waste Material to another facility within the same state, or to a facility in another state.

ii. The identity of the receiving facility and state will be determined by Respondent following the award of the contract for the removal action. Respondent shall provide the information required by Paragraph 45(a) and 45(b) as soon as practicable after the award of the contract and before the Waste Material is actually shipped.

b. Before shipping any hazardous substances, pollutants, or contaminants from the St. Francois County Mining Area to an off-site location, Respondent shall obtain EPA's certification that the proposed receiving facility is operating in compliance with the requirements of CERCLA Section 121(d)(3), 42 U.S.C. § 9621(d)(3), and 40 C.F.R. § 300.440. Respondent shall only send hazardous substances, pollutants, or contaminants from the St. Francois County Mining Area to an off-site facility that complies with the requirements of the statutory provision and regulation cited in the preceding sentence.

IX. SITE ACCESS

46. If any property within the St. Francois County Mining Area where access is needed to implement this Order is owned or controlled by the Respondent, Respondent shall, commencing on the Effective Date, provide EPA and its representatives, including contractors, with access at all reasonable times to the property for the purpose of conducting any activity related to this Order.

47. Where any action under this Order is to be performed in areas owned by or in possession of someone other than Respondent, Respondent shall use its best efforts to obtain all necessary access agreements. Respondent shall notify EPA after using its "best efforts" if it is unable to obtain such agreements. For purposes of this Paragraph, "best efforts" is defined as an initial visit, a follow-up telephone call and a certified letter from Respondent to the present owner

of the property, requesting an access agreement to permit Respondent and EPA, including its authorized representatives, access to the property to conduct the activities required under this Order. Respondent shall detail in a log its efforts to obtain access, including the time and dates of the initial visit, the telephone call, the date the certified letter was mailed, the date the notice of delivery was received, and either the date of the response by the landowner or the date EPA was notified of the landowner's failure to respond. EPA may then assist Respondent in gaining access, to the extent necessary to effectuate the response actions described herein, using such means as EPA deems appropriate pursuant to its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations. Respondents shall reimburse EPA for all costs and attorney's fees incurred by the United States in obtaining such access, in accordance with the procedures in Section XV (Payment of Response Costs).

48. Notwithstanding any provision of this Order, EPA retains all of its access authorities and rights, including enforcement authorities related thereto, under CERCLA, RCRA, and any other applicable statutes or regulations.

X. ACCESS TO INFORMATION

49. Respondent shall provide to EPA, upon request, copies of all documents and information within its possession or control or that of its contractors or agents relating to activities at the St. Francois County Mining Area or to the implementation of this Order, including, but not limited to, sampling, analysis, chain of custody records, manifests, trucking logs, receipts, reports, sample traffic routing, correspondence, or other documents or information related to the Work. Respondent shall also make available to EPA, for purposes of investigation, information gathering, or testimony, its employees, agents, or representatives with knowledge of relevant facts concerning the performance of the Work.

50. Respondent may assert business confidentiality claims covering part or all of the documents or information submitted to EPA under this Order to the extent permitted by and in accordance with Section 104(e)(7) of CERCLA, 42 U.S.C. § 9604(e)(7), and 40 C.F.R. § 2.203(b). Documents or information determined to be confidential by EPA will be afforded the protection specified in 40 C.F.R. Part 2, Subpart B. If no claim of confidentiality accompanies documents or information when they are submitted to EPA, or if EPA has notified Respondent that the documents or information are not confidential under the standards of Section 104(e)(7) of CERCLA or 40 C.F.R. Part 2, Subpart B, the public may be given access to such documents or information without further notice to Respondent.

51. Respondent may assert that certain documents, records and other information provided under this Section are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege in lieu of providing documents, it shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the

author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the contents of the document, record, or information; and 6) the privilege asserted by Respondent. However, no documents, reports or other information created or generated pursuant to the requirements of this Order shall be withheld on the grounds that they are privileged.

52. No claim of confidentiality shall be made with respect to any data, including, but not limited to, all sampling, analytical, monitoring, hydrogeologic, scientific, chemical, or engineering data, or any other documents or information evidencing conditions at or around the St. Francois County Mining Area.

XI. RECORD RETENTION

53. Until 10 years after Respondent's receipt of EPA's notification pursuant to Section XXVIII (Notice of Completion of Work), Respondent shall preserve and retain all non-identical copies of records and documents (including records or documents in electronic form) now in its possession or control or which come into its possession or control that relate in any manner to the performance of the Work or the liability of any person under CERCLA with respect to the St. Francois County Mining Area, regardless of any corporate retention policy to the contrary. Until 10 years after Respondent's receipt of EPA's notification pursuant to Section XXVIII (Notice of Completion of Work), Respondent shall also instruct its contractors and agents to preserve all documents, records, and information of whatever kind, nature or description relating to performance of the Work.

54. At the conclusion of this document retention period, Respondent shall notify EPA at least 90 days prior to the destruction of any such records or documents, and, upon request by EPA, Respondent shall deliver any such records or documents to EPA. Respondent may assert that certain documents, records and other information are privileged under the attorney-client privilege or any other privilege recognized by federal law. If Respondent asserts such a privilege, it shall provide EPA with the following: 1) the title of the document, record, or information; 2) the date of the document, record, or information; 3) the name and title of the author of the document, record, or information; 4) the name and title of each addressee and recipient; 5) a description of the subject of the document, record, or information; and 6) the privilege asserted by Respondents. However, no documents, reports or other information created or generated pursuant to the requirements of this Order shall be withheld on the grounds that they are privileged.

55. Respondent hereby certifies that to the best of its knowledge and belief, after thorough inquiry, it has not altered, mutilated, discarded, destroyed or otherwise disposed of any records, documents or other information (other than identical copies) relating to its potential liability regarding the St. Francois County Mining Area since notification of potential liability by EPA or the State or the filing of suit against it regarding the St. Francois County Mining Area and that it

has fully complied with any and all EPA requests for information pursuant to Sections 104(e) and 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) and 9622(e), and Section 3007 of RCRA, 42 U.S.C. § 6927.

XII. COMPLIANCE WITH OTHER LAWS

56. Respondent shall perform all actions required pursuant to this Order in accordance with all applicable local, state, and federal laws and regulations except as provided in Section 121(e) of CERCLA, 42 U.S.C. § 6921(e), and 40 C.F.R. §§ 300.400(e) and 300.415(j). In accordance with 40 C.F.R. § 300.415(j), all on-site actions required pursuant to this Order shall, to the extent practicable, as determined by EPA, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements ("ARARs") under federal environmental or state environmental or facility siting laws. Respondents shall identify ARARs in the Work Plan subject to EPA approval. The Work Plan shall also describe for each identified ARAR the measures to be taken to ensure compliance with the ARAR.

XIII. EMERGENCY RESPONSE AND NOTIFICATION OF RELEASES

57. In the event of any action or occurrence during performance of the Work which causes or threatens a release of Waste Material from the St. Francois County Mining Area that constitutes an emergency situation or may present an immediate threat to public health or welfare or the environment, Respondent shall immediately take all appropriate action. Respondent shall take these actions in accordance with all applicable provisions of this Order, including, but not limited to, the Health and Safety Plan, in order to prevent, abate or minimize such release or endangerment caused or threatened by the release. Respondent shall also immediately notify EPA's Project Coordinator or, in the event of his/her unavailability, the Regional Duty Officer, Emergency Planning and Response Branch, EPA Region VII, (913) 281-0991, of the incident or on-site conditions. In the event that Respondent fails to take appropriate response action as required by this Paragraph, and EPA takes such action instead, Respondent shall reimburse EPA all costs of the response action not inconsistent with the NCP pursuant to Section XV (Payment of Response Costs).

58. In addition, in the event of any release of a hazardous substance from the St. Francois County Mining Area, Respondent shall immediately notify EPA's Project Coordinator at (913) 551-7755 and the National Response Center at (800) 424-8802. Respondent shall submit a written report to EPA within 7 days after each release, setting forth the events that occurred and the measures taken or to be taken to mitigate any release or endangerment caused or threatened by the release and to prevent the reoccurrence of such a release. This reporting requirement is in addition to, and not in lieu of, reporting under Section 103(c) of CERCLA, 42 U.S.C. § 9603(c), and Section 304 of the Emergency Planning and Community Right-To-Know Act of 1986, 42 U.S.C. § 11004, *et seq.*

XIV. AUTHORITY OF EPA'S PROJECT COORDINATOR

59. EPA's Project Coordinator shall be responsible for overseeing Respondent's implementation of this Order. EPA's Project Coordinator shall have the authority vested in a Remedial Project Manager ("RPM") and an On-Scene Coordinator ("OSC") by the NCP, including the authority to halt, conduct, or direct any Work required by this Order, or to direct any other removal action undertaken at the St. Francois County Mining Area. Absence of EPA's Project Coordinator from the St. Francois County Mining Area shall not be cause for stoppage of work unless specifically directed by EPA's Project Coordinator.

XV. PAYMENT OF RESPONSE COSTS

60. Payments for Future Response Costs.

a. Respondents shall pay EPA all Future Response Costs, not to exceed a total of Forty Thousand Dollars (\$40,000), not inconsistent with the NCP. On a periodic basis, EPA will send Respondent a bill requiring payment, including an Itemized Cost Summary (SCORPIOS Report). Respondent shall make all payments within thirty (30) days of receipt of each bill requiring payment, except as otherwise provided in Paragraph 62 of this Order.

b. Respondent shall make all payments required by this Paragraph by a certified or cashier's check made payable to "EPA Hazardous Substance Superfund," referencing the name and address of the party making payment, EPA Site/Spill ID number 07CR OU03, and the docket number of this Order. Respondent shall send the check(s) to:

Mellon Bank
Attn: Superfund Accounting
EPA Region VII
(Comptroller Branch)
P.O. Box 360748M
Pittsburgh, PA 15251

c. At the time of payment, Respondent shall send a copy of the check, as well as any transmittal letter to Bruce Morrison, EPA Region VII, 901 N. 5th Street, Kansas City, Kansas 66101.

d. The total amount to be paid by Respondent pursuant to Paragraph 60(a) shall be deposited in the St. Francois County Mining Area Special Account within the EPA Hazardous Substance Superfund to be retained and used to conduct or finance response actions at or in connection with the St. Francois County Mining Area, or to be transferred by EPA to the EPA Hazardous Substance Superfund.

61. In the event that the payment for Future Response Costs is not made within thirty (30) days of Respondent's receipt of a bill, Respondent shall pay Interest on the unpaid balance. The Interest on Future Response Costs shall begin to accrue on the date of the bill and shall continue to accrue until the date of payment. Payments of Interest made under this Paragraph shall be in addition to such other remedies or sanctions available to the United States by virtue of Respondent's failure to make timely payments under this Section, including but not limited to, payment of stipulated penalties pursuant to Section XVIII.

62. Respondent may dispute all or part of a bill for Future Response Costs submitted under this Order, if Respondent alleges that EPA has made an accounting error, or if Respondent alleges that a cost item is inconsistent with the NCP. If any dispute over costs is resolved before payment is due, the amount due will be adjusted as necessary. If the dispute is not resolved before payment is due, Respondent shall pay the full amount of the uncontested costs to EPA as specified in Paragraph 60 on or before the due date. Within the same time period, Respondent shall pay the full amount of the contested costs into an interest-bearing escrow account. Respondent shall simultaneously transmit a copy of both checks to the persons listed in Paragraph 60(c) above. Respondent shall ensure that the prevailing party or parties in the dispute shall receive the amount upon which they prevailed from the escrow funds plus interest within ten (10) days after the dispute is resolved.

XVI. DISPUTE RESOLUTION

63. Unless otherwise expressly provided for in this Order, the dispute resolution procedures of this Section shall be the exclusive mechanism for resolving disputes arising under this Order. The Parties shall attempt to resolve any disagreements concerning this Order expeditiously and informally.

64. If Respondent objects to any EPA action taken pursuant to this Order, including billings for Future Response Costs, it shall notify EPA in writing of its objection(s) within ten (10) days of such action, unless the objection(s) has/have been resolved informally. EPA and Respondent shall have ten (10) days from EPA's receipt of Respondent's written objection(s) to resolve the dispute through formal negotiations (the "Negotiation Period"). The Negotiation Period may be extended at the sole discretion of EPA.

65. Any agreement reached by the parties pursuant to this Section shall be in writing and shall, upon signature by both parties, be incorporated into and become an enforceable part of this Order. If the Parties are unable to reach an agreement within the Negotiation Period, an EPA management official at the Division Director level or higher will issue a written decision on the dispute to Respondent. EPA's decision shall be incorporated into and become an enforceable part of this Order. Respondent's obligations under this Order shall not be tolled by submission of any objection for dispute resolution under this Section. Following resolution of the dispute, as provided by this Section, Respondent shall fulfill the requirement that was the subject of the dispute in accordance with the agreement reached or with EPA's decision, whichever occurs.

XVII. FORCE MAJEURE

66. Respondent agrees to perform all requirements of this Order within the time limits established under this Order, unless the performance is delayed by a *force majeure*. For purposes of this Order, a *force majeure* is defined as any event arising from causes beyond the control of Respondent, or of any entity controlled by Respondent, including but not limited to its contractors and subcontractors, which delays or prevents performance of any obligation under this Order despite Respondent's best efforts to fulfill the obligation. *Force majeure* does not include financial inability to complete the Work or increased cost of performance.

67. If any event occurs or has occurred that may delay the performance of any obligation under this Order, whether or not caused by a *force majeure* event, Respondent shall immediately notify EPA orally when Respondent first knew that the event might cause a delay. Within five (5) days thereafter, Respondent shall provide to EPA in writing an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize the delay; a schedule for implementation of any measures to be taken to prevent or mitigate the delay or the effect of the delay; Respondent's rationale for attributing such delay to a *force majeure* event if they intend to assert such a claim; and a statement as to whether, in the opinion of Respondent, such event may cause or contribute to an endangerment to public health, welfare or the environment. Failure to comply with the above requirements shall preclude Respondent from asserting any claim of *force majeure* for that event for the period of time of such failure to comply and for any additional delay caused by such failure.

68. If EPA agrees that the delay or anticipated delay is attributable to a *force majeure* event, the time for performance of the obligations under this Order that are affected by the *force majeure* event will be extended by EPA for such time as is necessary to complete those obligations. An extension of the time for performance of the obligations affected by the *force majeure* event shall not, of itself, extend the time for performance of any other obligation. If EPA does not agree that the delay or anticipated delay has been or will be caused by a *force majeure* event, EPA will notify Respondent in writing of its decision. If EPA agrees that the delay is attributable to a *force majeure* event, EPA will notify Respondent in writing of the length of the extension, if any, for performance of the obligations affected by the *force majeure* event.

XVIII. STIPULATED PENALTIES

69. Respondent shall be liable to EPA for stipulated penalties in the amounts set forth in Paragraphs 70 and 71 for failure to comply with the requirements of this Order specified below, unless excused under Section XVII (*Force Majeure*). "Compliance" by Respondent shall include completion of the activities under this Order or any work plan or other plan approved under this Order identified below in a manner acceptable to EPA and in accordance with all applicable requirements of law, this Order, the SOW, and any plans or other documents approved by EPA pursuant to this Order and within the specified time schedules established by and approved under this Order.

70. Stipulated Penalty Amounts - Work.

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 70.b.:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 1,000	1st through 14th day
\$ 2,000	15th through 30th day
\$ 3,000	31st day and beyond

b. Compliance Milestones

- (1) Failure to submit the Work Plan in a timely or adequate manner.
- (2) Failure to comply with the sampling rate as set forth in the SOW.
- (3) Failure to timely conduct soil replacement as set forth in Section VIII and the SOW.
- (4) Failure to timely pay Future Response Costs.

71. Stipulated Penalty Amounts - Other Deliverables or Violations.

a. The following stipulated penalties shall accrue per violation per day for any noncompliance identified in Paragraph 71.b.:

<u>Penalty Per Violation Per Day</u>	<u>Period of Noncompliance</u>
\$ 500	1st through 14th day
\$ 1,000	15th through 30th day
\$ 2,000	31st day and beyond

b. Compliance Milestones:

- (1) Failure to submit the Final Report in a timely or adequate manner.
- (2) Failure to submit Written Progress Reports in a timely or adequate manner.
- (3) Any other violation of this Order, other than those milestones identified in Paragraph 70.b. and 71.b.(1)-(2).

72. All penalties shall begin to accrue on the day after the complete performance is due or the day a violation occurs, and shall continue to accrue through the final day of the correction of the noncompliance or completion of the activity. However, stipulated penalties shall not accrue: 1) with respect to a deficient submission under Section VIII (Work to be Performed), during the period, if any, beginning on the 31st day after EPA's receipt of such submission until the date that EPA notifies Respondents of any deficiency; and 2) with respect to a decision by the EPA Management Official at the Division Director level or higher, under Paragraph 65 of Section XVI

(Dispute Resolution), during the period, if any, beginning on the 21st day after the Negotiation Period begins until the date that the EPA management official issues a final decision regarding such dispute. Nothing herein shall prevent the simultaneous accrual of separate penalties for separate violations of this Order.

73. Following EPA's determination that Respondent has failed to comply with a requirement of this Order, EPA may give Respondent written notification of the failure and describe the noncompliance. EPA may send Respondent a written demand for payment of the penalties. However, penalties shall accrue as provided in the preceding Paragraph regardless of whether EPA has notified Respondent of a violation.

74. All penalties accruing under this Section shall be due and payable to EPA within 30 days of Respondent's receipt from EPA of a demand for payment of the penalties, unless Respondent invokes the dispute resolution procedures under Section XVI (Dispute Resolution). All payments to EPA under this Section shall be paid by certified or cashier's check(s) made payable to "EPA Hazardous Substances Superfund," shall be mailed to Mellon Bank, Attn: Superfund Accounting, EPA Region VII, (Comptroller Branch), P.O. Box 360748M, Pittsburgh, PA 15251, shall indicate that the payment is for stipulated penalties, and shall reference the EPA Region and Site/Spill ID Number 07CR OU03, the EPA Docket Number which appears on the face of this Order, and the name and address of the party(ies) making payment. Copies of check(s) paid pursuant to this Section, and any accompanying transmittal letter(s), shall be sent to EPA as provided in Paragraph 33.

75. The payment of penalties shall not alter in any way Respondent's obligation to complete performance of the Work required under this Order.

76. Penalties shall continue to accrue during any dispute resolution period, but need not be paid until 15 days after the dispute is resolved by agreement or by receipt of EPA's decision.

77. If Respondent fails to pay stipulated penalties when due, EPA may institute proceedings to collect the penalties, as well as Interest. Respondent shall pay Interest on the unpaid balance, which shall begin to accrue on the date of demand made pursuant to Paragraph 73. Nothing in this Order shall be construed as prohibiting, altering, or in any way limiting the ability of EPA to seek any other remedies or sanctions available by virtue of Respondent's violation of this Order or of the statutes and regulations upon which it is based, including, but not limited to, penalties pursuant to Sections 106(b) and 122(l) of CERCLA, 42 U.S.C. §§ 9606(b) and 9622(l), and punitive damages pursuant to Section 107(c)(3) of CERCLA, 42 U.S.C. § 9607(c)(3). Provided, however, that EPA shall not seek civil penalties pursuant to Section 106(b) or 122(l) of CERCLA or punitive damages pursuant to Section 107(c)(3) of CERCLA for any violation for which a stipulated penalty is provided herein, except in the case of a willful violation of this Order or in the event that EPA assumes performance of a portion or all of the Work

pursuant to Section XX, Paragraph 81. Notwithstanding any other provision of this Section, EPA may, in its unreviewable discretion, waive any portion of stipulated penalties that have accrued pursuant to this Order.

XIX. COVENANT NOT TO SUE BY EPA

78. In consideration of the actions that will be performed and the payments that will be made by Respondent under the terms of this Order, and except as otherwise specifically provided in this Order, EPA covenants not to sue or to take administrative action against Respondent pursuant to Sections 106 and 107(a) of CERCLA, 42 U.S.C. §§ 9606 and 9607(a), for performance of the Work and for recovery of Future Response Costs paid by Respondent. This covenant not to sue shall take effect upon the Effective Date and is conditioned upon the complete and satisfactory performance by Respondent of all obligations under this Order, including, but not limited to, payment of Future Response Costs pursuant to Section XV. This covenant not to sue extends only to Respondent and does not extend to any other person.

XX. RESERVATIONS OF RIGHTS BY EPA

79. Except as specifically provided in this Order, nothing herein shall limit the power and authority of EPA or the United States to take, direct, or order all actions necessary to protect public health, welfare, or the environment or to prevent, abate, or minimize an actual or threatened release of hazardous substances, pollutants or contaminants, or hazardous or solid waste on, at, or from the St. Francois County Mining Area. Further, nothing herein shall prevent EPA from seeking legal or equitable relief to enforce the terms of this Order, from taking other legal or equitable action as it deems appropriate and necessary, or from requiring Respondent in the future to perform additional activities pursuant to CERCLA or any other applicable law.

80. The covenant not to sue set forth in Section XIX above does not pertain to any matters other than those expressly identified therein. EPA reserves, and this Order is without prejudice to, all rights against Respondent with respect to all other matters, including, but not limited to:

- a. claims based on a failure by Respondent to meet a requirement of this Order;
- b. liability for costs not included within the definition of Future Response Costs;
- c. liability for performance of response action other than the Work;
- d. criminal liability;
- e. liability for damages for injury to, destruction of, or loss of natural resources, and for the costs of any natural resource damage assessments;
- f. liability arising from the past, present, or future disposal, release or threat of

release of Waste Materials outside of the St. Francois County Mining Area; and

g. liability for costs incurred or to be incurred by the Agency for Toxic Substances and Disease Registry related to the St. Francois County Mining Area.

81. Work Takeover. In the event EPA determines that Respondent has ceased implementation of any portion of the Work, is seriously or repeatedly deficient or late in its performance of the Work, or is implementing the Work in a manner which may cause an endangerment to human health or the environment, EPA may assume the performance of all or any portion of the Work as EPA determines necessary. Respondent may invoke the procedures set forth in Section XVI (Dispute Resolution) to dispute EPA's determination that takeover of the Work is warranted under this Paragraph. Costs incurred by the United States in performing the Work pursuant to this Paragraph shall be considered Future Response Costs that Respondent shall pay pursuant to Section XV (Payment of Response Costs). Notwithstanding any other provision of this Order, EPA retains all authority and reserves all rights to take any and all response actions authorized by law.

XXI. COVENANT NOT TO SUE BY RESPONDENT

82. Respondent agrees not to sue the United States for, and waives any claim to, payment under Sections 106(b), 111, and 112 of CERCLA, 42 U.S.C. §§ 9606(b), 9611, and 9612, against the United States or the Hazardous Substances Superfund arising out of any activity performed under this Consent Order.

83. Nothing in this Agreement shall be deemed to constitute approval or preauthorization of a claim within the meaning of Section 111 of CERCLA, 42 U.S.C. § 9611, or 40 C.F.R. § 300.700(d).

84. Respondent agrees not to assert any claims and waives all claims or causes of action that it may have pursuant to Sections 107 and 113 of CERCLA, 42 U.S.C. §§ 9607 and 9613, for all matters relating to the St. Francois County Mining Area, including for contribution, against any person where the person's liability to Respondent with respect to the St. Francois County Mining Area is based solely on ownership of residential property where soils were addressed pursuant to this Order, and the person did not dispose of, or arrange for disposal of, hazardous substances on the residential property.

85. The waiver in Paragraph 84 shall not apply with respect to any defense, claim, or cause of action that Respondent may have against any person meeting the above criteria if such person asserts a claim or cause of action relating to the St. Francois County Mining Area against Respondent. This waiver also shall not apply to any claim or cause of action against any person meeting the above criteria if EPA determines that such person has failed to comply with any EPA requests for information or administrative subpoenas issued pursuant to Section 104(e) or 122(e) of CERCLA, 42 U.S.C. §§ 9604(e) or 9622(e), or Section 3007 of RCRA, 42 U.S.C. § 6927, or

has impeded or is impeding, through action or inaction, the performance of a response action or natural resource restoration with respect to the St. Francois County Mining Area, or has been convicted of a criminal violation for the conduct to which this waiver would apply and that conviction has not been vitiated on appeal or otherwise.

XXII. OTHER CLAIMS

86. By issuance of this Order, the United States and EPA assume no liability for injuries or damages to persons or property resulting from any acts or omissions of Respondent. The United States or EPA shall not be deemed a party to any contract entered into by Respondent or their directors, officers, employees, agents, successors, representatives, assigns, contractors, or consultants in carrying out actions pursuant to this Order.

87. Except as expressly provided in Section XIX (Covenant Not to Sue by EPA), nothing in this Order constitutes a satisfaction of or release from any claim or cause of action against Respondent or any person not a party to this Order, for any liability such person may have under CERCLA, other statutes, or common law, including but not limited to any claims of the United States for costs, damages and interest under Sections 106 and 107 of CERCLA, 42 U.S.C. §§ 9606 and 9607.

88. No action or decision by EPA pursuant to this Order shall give rise to any right to judicial review, except as set forth in Section 113(h) of CERCLA, 42 U.S.C. § 9613(h).

XXIII. CONTRIBUTION PROTECTION

89. The Parties agree that Respondent is entitled, as of the Effective Date, to protection from contribution actions or claims as provided by Sections 113(f)(2) and 122(h)(4) of CERCLA, 42 U.S.C. §§ 9613(f)(2) and 9622(h)(4), for "matters addressed" in this Order. The "matters addressed" in this Order are the Work and Future Response Costs paid by Respondent. Nothing in this Order precludes the United States or Respondent from asserting any claims, causes of action, or demands against any persons not parties to this Order for indemnification, contribution, or cost recovery.

XXIV. INDEMNIFICATION

90. Respondent shall indemnify, save and hold harmless the United States, its officials, agents, contractors, subcontractors, employees and representatives from any and all claims or causes of action arising from, or on account of, negligent or other wrongful acts or omissions of Respondent, its officers, directors, employees, agents, contractors, or subcontractors, in carrying out actions pursuant to this Order. In addition, Respondent agrees to pay the United States all costs incurred by the United States, including but not limited to attorneys fees and other expenses of litigation and settlement, arising from or on account of claims made against the United States based on negligent or other wrongful acts or omissions of Respondent, its officers, directors,

employees, agents, contractors, subcontractors and any persons acting on their behalf or under its control, in carrying out activities pursuant to this Order. The United States shall not be held out as a party to any contract entered into by or on behalf of Respondent in carrying out activities pursuant to this Order. Neither Respondent nor any such contractor shall be considered an agent of the United States.

91. The United States shall give Respondent notice of any claim for which the United States plans to seek indemnification pursuant to this Section and shall consult with Respondent prior to settling such claim.

92. Respondent waives all claims against the United States for damages or reimbursement or for set-off of any payments made or to be made to the United States, arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the St. Francois County Mining Area, including, but not limited to, claims on account of construction delays. In addition, Respondent shall indemnify and hold harmless the United States with respect to any and all claims for damages or reimbursement arising from or on account of any contract, agreement, or arrangement between Respondent and any person for performance of Work on or relating to the St. Francois County Mining Area, including, but not limited to, claims on account of construction delays.

XXV. INSURANCE

93. At least 7 days prior to commencing any on-Site work under this Order, Respondent shall secure, and shall maintain for the duration of this Order, comprehensive general liability insurance and automobile insurance with limits of one million dollars, combined single limit. Within the same time period, Respondent shall provide EPA with certificates of such insurance and a copy of each insurance policy. In addition, for the duration of the Order, Respondent shall satisfy, or shall ensure that its contractors or subcontractors satisfy, all applicable laws and regulations regarding the provision of worker's compensation insurance for all persons performing the Work on behalf of Respondent in furtherance of this Order. If Respondent demonstrates by evidence satisfactory to EPA that any contractor or subcontractor maintains insurance equivalent to that described above, or insurance covering some or all of the same risks but in an equal or lesser amount, then Respondent need provide only that portion of the insurance described above which is not maintained by such contractor or subcontractor.

XXVI. MODIFICATIONS

94. This Consent Order may be modified by mutual agreement of Respondent and EPA. Except as provided in Paragraph 95 below, any such amendment shall be in writing and shall be signed by an authorized representative of Respondent and EPA. Unless otherwise provided for in the amendment, the effective date of any such modification shall be the date on which the written agreement or modification is signed by EPA after signature by the Respondent. All modifications shall be incorporated into and become a part of this Consent Order.

95. The Statement of Work, the Work Plan, and the schedule for deliverables under this Consent Order may be modified by mutual written consent of the Project Coordinators for EPA and Respondent.

96. No informal advice, guidance, suggestion, or comment by EPA's Project Coordinator or other EPA representatives regarding reports, plans, specifications, schedules, or any other writing submitted by Respondent shall relieve Respondent of its obligation to obtain any formal approval required by this Order, or to comply with all requirements of this Order, unless it is formally modified.

XXVII. ADDITIONAL WORK

97. If EPA determines that additional work not included in an approved plan is necessary to satisfy the scope and substance of this Consent Order, EPA will notify Respondent of that determination. The scope and substance of the Removal Action to be performed by Respondent is set forth in Section VIII of this Consent Order and the SOW incorporated herein as Attachment 1 to this Consent Order, including, but not limited to, the specific limitations of the boundaries within which Work is to be performed (i.e. those areas delineated in Exhibit A to the SOW) and the required rate of soil remediation. Respondent shall confirm its willingness to perform the additional work in writing to EPA within thirty (30) days of receipt of the EPA notice or Respondent shall invoke the dispute resolution provisions of Section XVI of this Order. Subject to EPA resolution of any dispute, Respondent shall implement the additional tasks which EPA determines are necessary. Unless otherwise stated by EPA, or unless Respondent invokes dispute resolution, within thirty (30) days of receipt of notice from EPA that additional work is necessary, Respondent shall submit for approval by EPA a work plan for the additional work. This work plan shall conform to the applicable requirements of Section VIII (Work to be Performed) of this Order. Upon EPA's approval of the plan pursuant to Section VIII, Respondent shall implement the plan for additional work in accordance with the provisions and schedules contained therein.

XXVIII. NOTICE OF COMPLETION OF WORK

98. When EPA determines, after EPA's review of the Final Report, that all Work has been fully performed in accordance with this Order, with the exception of any continuing obligations required by this Order (e.g. record retention, etc.), EPA will provide written notice to Respondent. If EPA determines that any such Work has not been completed in accordance with this Order, EPA will notify Respondent, provide a list of the deficiencies, and require that Respondent modify the Work Plan if appropriate in order to correct such deficiencies. Respondent shall implement the modified and approved Work Plan and shall submit a modified Final Report in accordance with the EPA notice. Failure by Respondent to implement the approved modified Work Plan shall be a violation of this Order.

XXIX. SEVERABILITY/INTEGRATION/APPENDICES

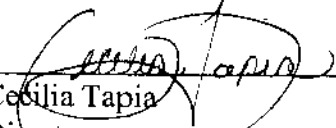
99. If a court issues an order that invalidates any provision of this Order or finds that Respondent has sufficient cause not to comply with one or more provisions of this Order, Respondent shall remain bound to comply with all provisions of this Order not invalidated or determined to be subject to a sufficient cause defense by the court's order.

100. This Order and its attachments constitute the final, complete and exclusive agreement and understanding among the Parties with respect to the settlement embodied in this Order. The parties acknowledge that there are no representations, agreements or understandings relating to the settlement other than those expressly contained in this Order.

XXX. EFFECTIVE DATE

101. This Order shall become effective upon receipt by Respondent of a fully executed and file-stamped copy of this Order, as shown by the date on the certified mail receipt.

IT IS SO ORDERED.



Cecilia Tapia
Director
Superfund Division
Region VII
U.S. Environmental Protection Agency

DATE: 3/29/04

In the Matter of St. Francois County Mining Area

The representative of Respondent who has signed the signature page certifies that he/she is fully authorized to enter into the terms and conditions of this Order and to bind the party he/she represents to this document.

For THE DOE RUN RESOURCES CORPORATION



Name: LOUIS J. MARCICHEAU

Title: VICE PRESIDENT LAW

DATE: 9 MAR 04

Attachment 1
STATEMENT OF WORK
Removal Action for Surface Soil Characterization and Removal
St. Francois County Mine Tailings Sites

Objective

The objectives of the removal action to be performed by the Respondent are as follows:

1. To provide for a surface soil characterization program for the residents within the boundaries shown on Exhibit A to this SOW.
2. To provide a surface soil replacement program for any yard or child high use area within the boundaries shown on Exhibit A to this SOW where lead concentrations exceed 400 parts per million (ppm). The boundaries shown on Exhibit A are meant to represent the area within 500 feet of chat and tailings waste, 1,000 feet from four identified smelters/calciners, and 100 feet from mine shafts.

Work to Be Performed

1. Soil Characterization and Health Education

For any residence or child high use area within the boundaries shown on Exhibit A that have not been previously sampled, Respondent shall characterize surface soils to determine the lead concentration present. In addition, Respondent shall characterize surface soils to determine the lead concentration present for any residence located within the boundaries shown on Exhibit B which has not been previously sampled, where Respondent is notified that an EBL child under 72 months of age resides. The sampling will be conducted in accordance with an EPA-approved sampling plan. Multi-aliquot soil samples will be collected from the upper 1 inch of soil in each quadrant of a yard. Separate multi-aliquot soil samples will be collected from drip zones, down spout outfalls, driveways, and child play areas. Analysis can be performed using an XRF instrument with 5% of the samples being submitted to a laboratory for analysis. The Respondent shall prove, in advance, to EPA's satisfaction, that each laboratory it uses is qualified to conduct the proposed work. The laboratory shall have and follow a quality assurance program.

Data shall be provided to EPA in both paper copy and in a Geographical Information System (GIS) format. All visits to homes will be documented and entered into the GIS including those sampled, no one at home, and refusals to allow sampling (including reason given, if any.) A personalized package of EPA-approved educational material and sampling results shall be provided to the homeowner in a "Sampling Results Letter" within 2 weeks of Respondent's receipt of sampling results. Parents or guardians of young children should be encouraged to have their child scheduled for blood lead testing.

Respondent shall provide EPA-approved health education literature to all homes visited when making first contact with residents to obtain access for yard sampling. Respondent shall provide a new HEPA vacuum cleaner to all homeowners within the boundaries shown on Exhibit A for use by residents. Respondents shall continue to implement the HEPA vacuum loan out program required pursuant to Administrative Order on Consent, Docket No. CERCLA-7-2000-0015 for all residents within the boundaries shown on Exhibit B of this SOW.

2. Soil Replacement

Soil replacement shall be conducted at all areas of a residence or child high use area within the boundaries shown on Exhibit A where sampling indicates surface soil lead concentrations exceed 400 ppm. In addition, soil replacement shall be conducted at any residence where an EBL child under 72 months of age resides, which is located within the boundaries shown on Exhibit B, and where sampling indicates surface soil lead concentrations exceed 400 ppm. Replacement soil shall not contain lead in excess of 240 ppm. If the soil lead concentration is greater than 400 ppm at twelve inches of depth, a construction/marker barrier will be placed prior to backfilling the area. All areas of a residence exceeding 400 ppm lead in soil shall undergo soil replacement during one mobilization event from construction crews. The Respondent shall replace soils at a minimum of 60 residences/child high use areas per calendar year. Residential soil replacement shall be prioritized in accordance with the following:

- First priority - Residence where EBL child under 72 months of age resides
- Second Priority - Residence where child under 72 months of age resides
- Third Priority - Residence with a soil area exceeding 1,200 ppm lead
- Fourth priority - Residence with a soil area exceeding 400 ppm lead

Pending EPA approval, alternative treatment technologies such as phosphate treatment, may be substituted for surface soil replacement. The Work Plan would be amended at that time to reflect changes in soil lead cleanup strategy.

Work Products

1. Work Plan – The Respondent shall prepare a Work Plan that describes the soil characterization and replacement activities. The Work Plan shall include a Field Sampling Plan, a Quality Assurance Project Plan (QAPP), and Health and Safety Plan in accordance with Paragraphs 38, 39 and 40 of the Order.
2. Removal Completion Report - The Respondent shall prepare a Removal Completion Report in accordance with Paragraph 44 of the Order.

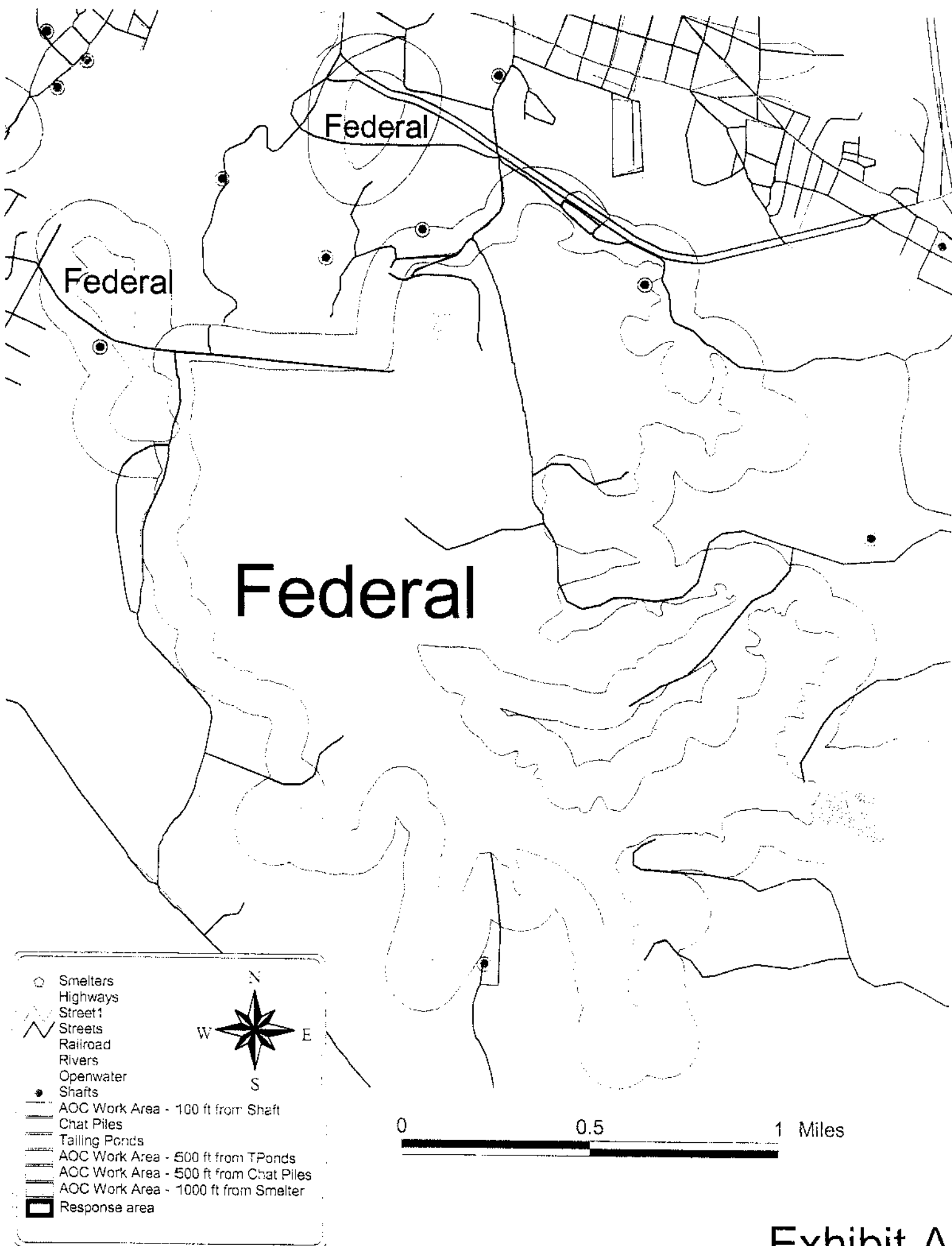
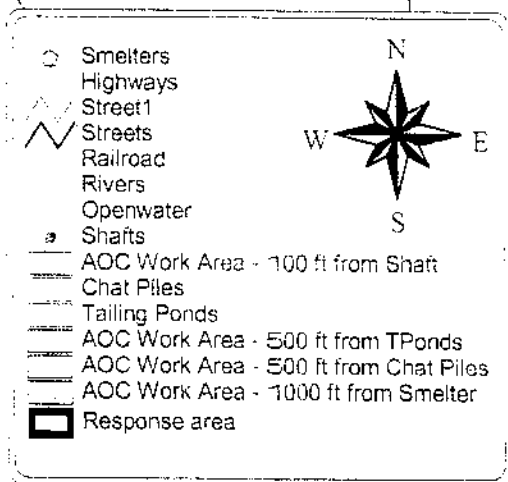


Exhibit A

Leadwood



0 0.5 1 Miles

Exhibit A

Desloge

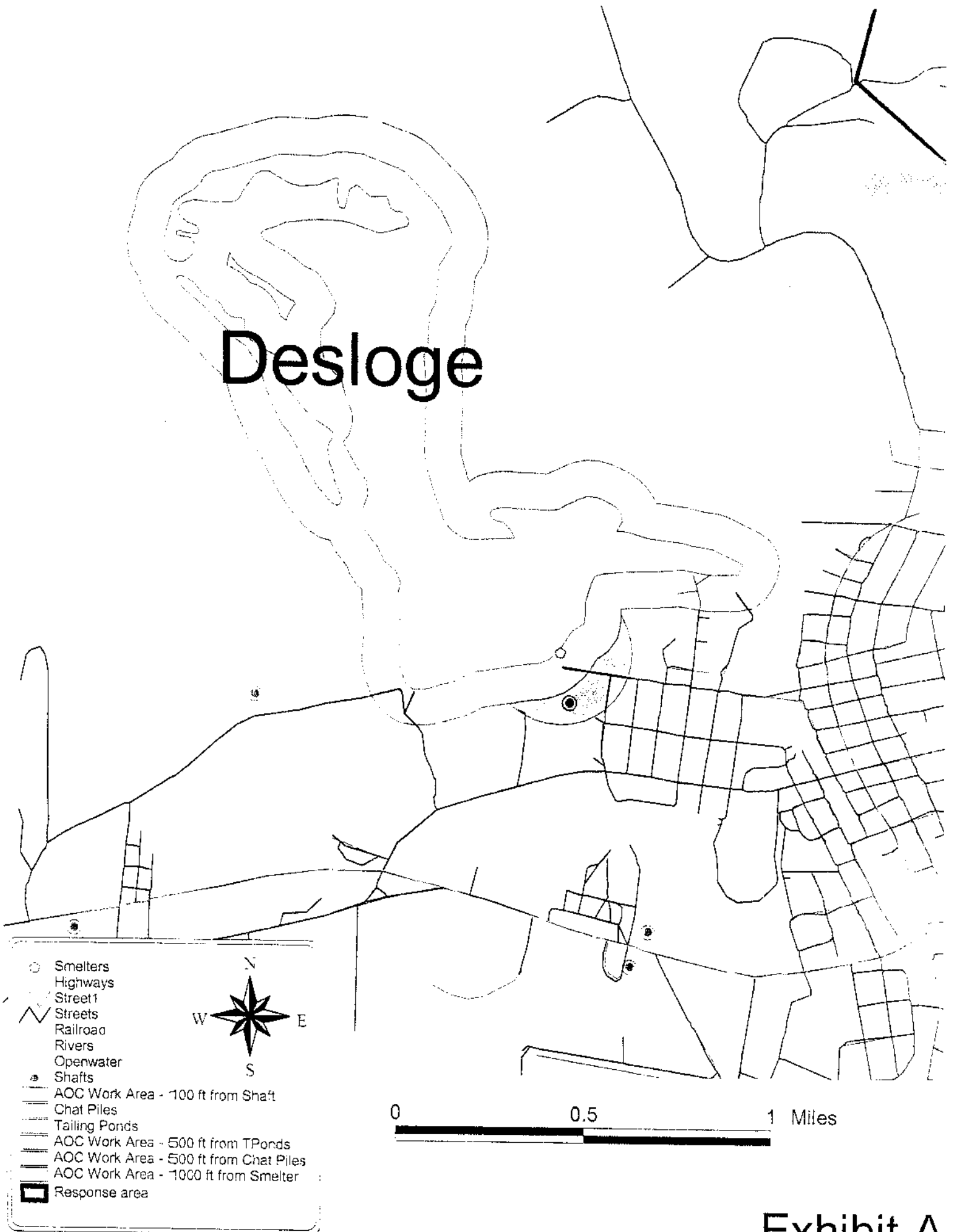


Exhibit A

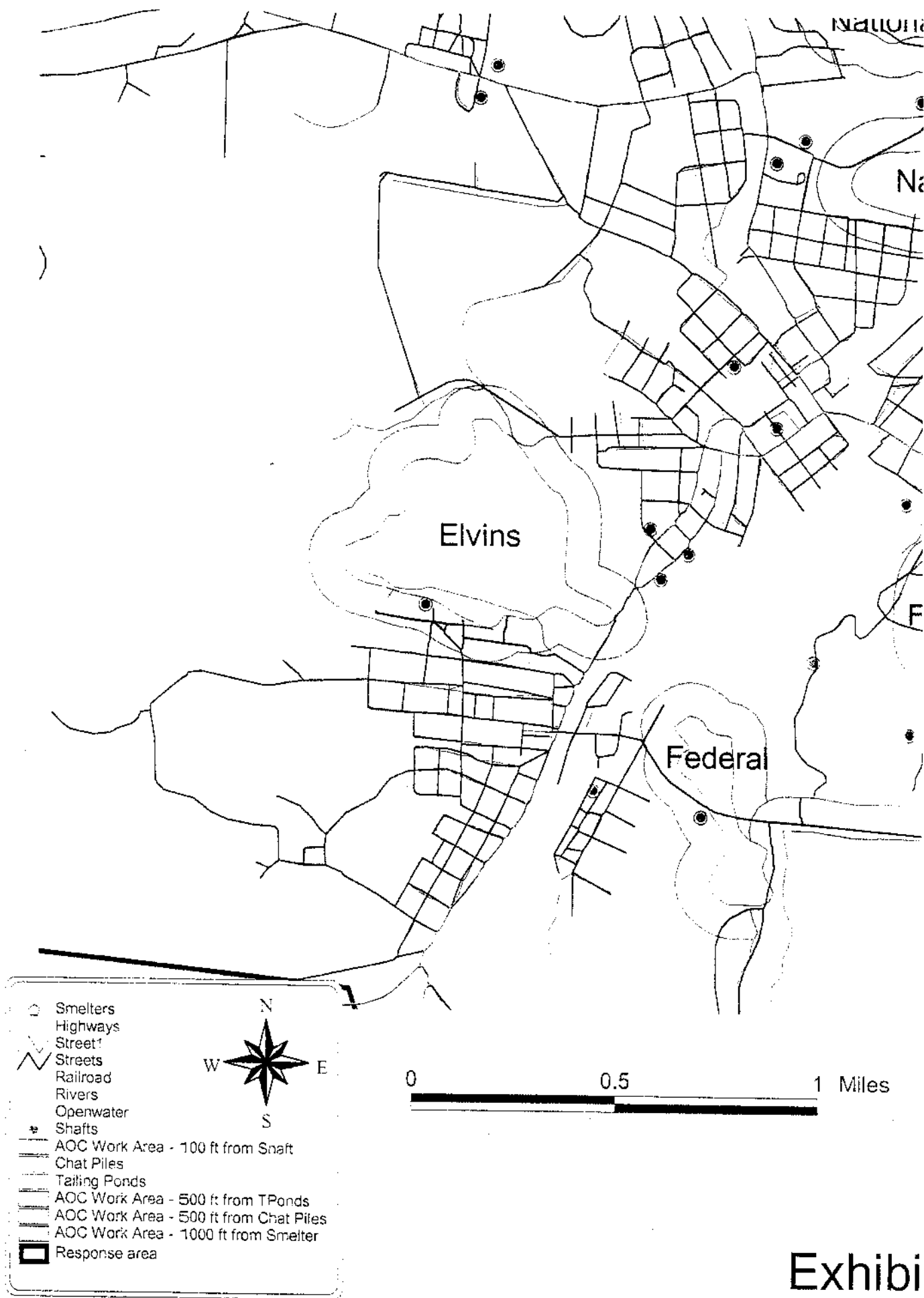


Exhibit A

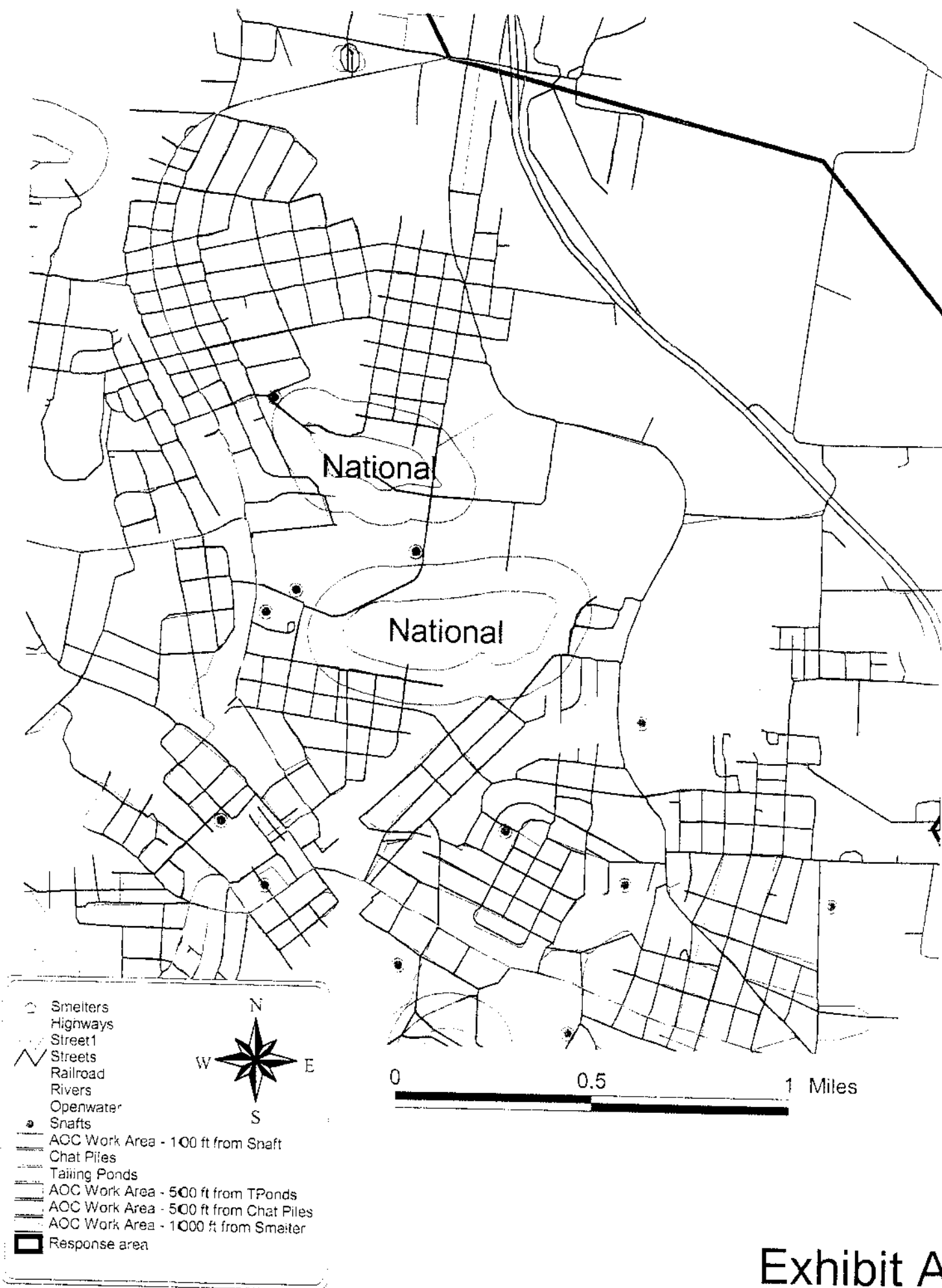

















Exhibit A

Bonne Terre

-  Smelters
-  Highways
-  Street1
-  Streets
-  Railroad
-  Rivers
-  Openwater
-  Shafts
-  AOC Work Area - 100 ft from Shaft
-  Chat Piles
-  Tailing Ponds
-  AOC Work Area - 500 ft from TPonds
-  AOC Work Area - 500 ft from Chat Piles
-  AOC Work Area - 1000 ft from Smelter
-  Response area



0 0.5 1 Miles


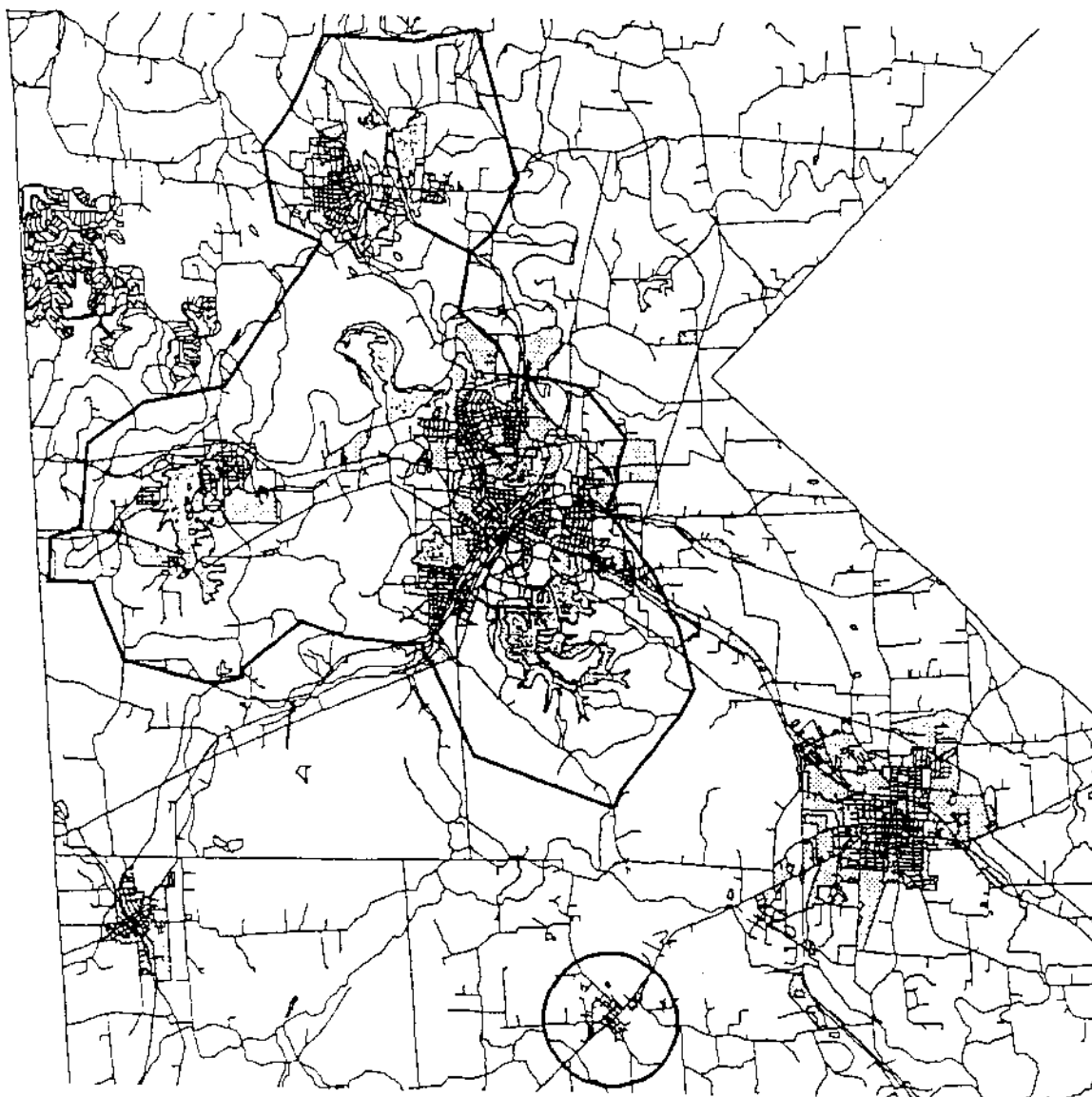


Exhibit A

St. Francois County Mine Tailings Sites Response Area



1 0 1 2 Miles

Exhibit B



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION VII
726 MINNESOTA AVENUE
KANSAS CITY, KANSAS 66101

Site:	Big River mine
ID #:	Mod 981126899
Block:	2.6 out 1
Other:	N/D

MEMORANDUM

SUBJECT: Request for Removal Action for St. Francois County Mining Area, St. Francois County, Missouri

ACTION MEMORANDUM/ENFORCEMENT

FROM: Jack D. Generaux, Remedial Project Manager
Federal Facilities/Special Emphasis Branch

THRU: Michael J. Sanderson, Director
Superfund Division

TO: Dennis Grams, P.E.
Regional Administrator

Site ID: #07CR
Category of Removal: Time Critical
CERCLIS ID: #MOD981126899
Nationally Significant/Precedent Setting: No

I. PURPOSE

This Action Memorandum requests approval for a time-critical removal action for replacing or covering contaminated soils around the residences of young children with elevated blood-lead levels. The scope of the action includes the mine-affected areas of St. Francois County, Missouri. Work will be performed by the Potentially Responsible Parties (PRPs) with the Environmental Protection Agency (EPA) oversight. The proposed removal is a part of a multi-agency response for the St. Francois County Mining area including the Big River Mine Tailings Site which is listed on the National Priorities List (NPL.)

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

The St. Francois County is located in an area of historic mining called the Old Lead Belt. Past ore extraction, milling, separation, and smelting activity conducted in the area since the 1700s, have left lead contamination in soil. In addition, the use of leaded gasoline, lead solder, lead-based paint and other lead-containing products contribute to lead exposure. Natural ores and ore-derived soils at the surface also add to the problem.

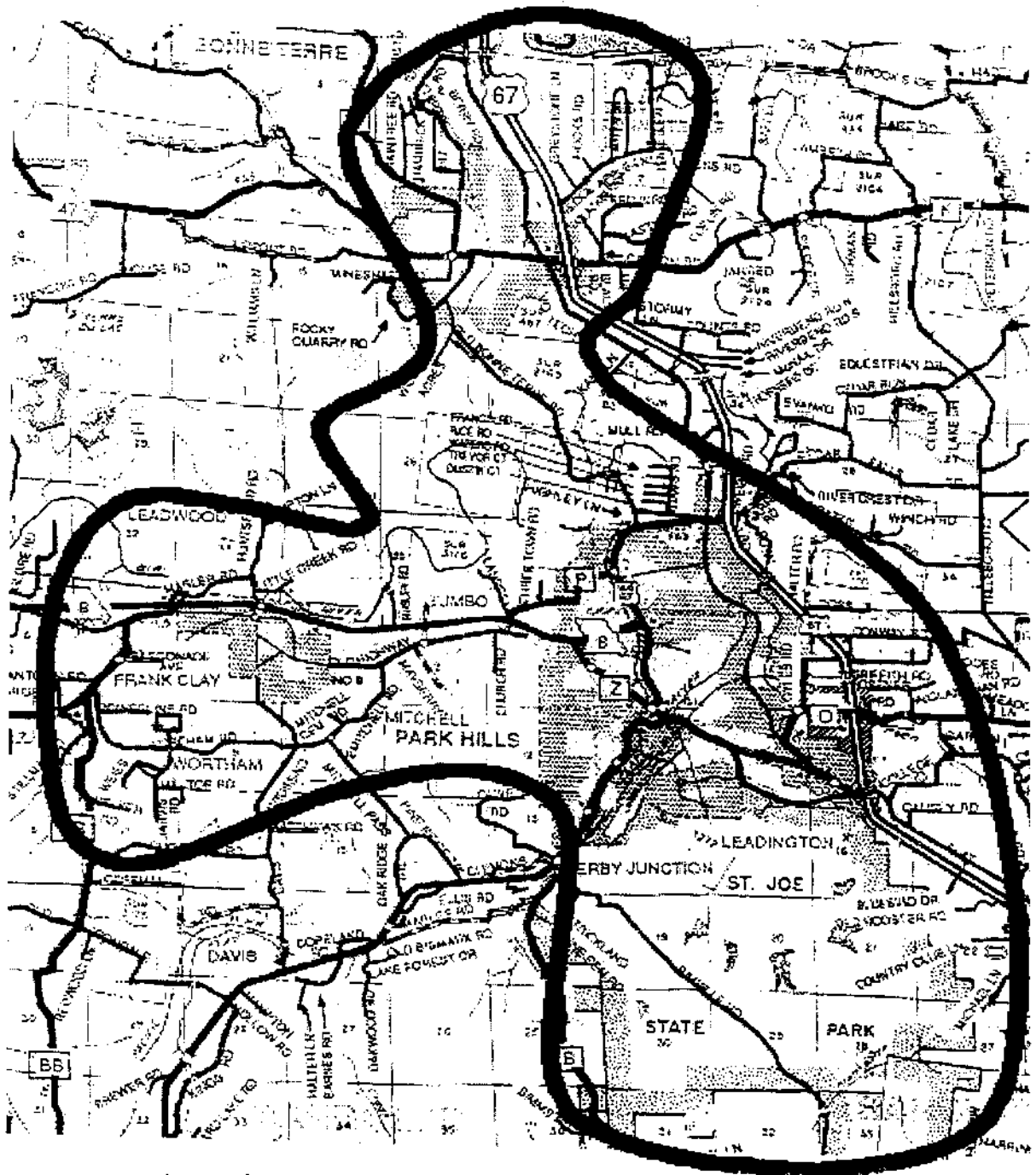
In May 1997, the Missouri Department of Health (MDOH) released a draft Lead Exposure study of children in Old Lead Belt. The MDOH study, funded by the ATSDR, EPA and the Doe Run Company, included sampling children's blood, sampling environmental media (such as soil and dust), and questioning the residents about their lifestyle as it related to lead exposure. The study compared the information in the Old Lead Belt of St. Francois County to information collected during the study on a control area (Salem, Missouri) located outside the area of concern. In the Old Lead Belt, about 17% of the children tested showed a blood lead level of more than 10 micrograms/deciliter ($\mu\text{g}/\text{dl}$) whereas only about 3% of the children in Salem were elevated.

Concurrently with the MDOH Study, EPA released its strategy to reduce the health impacts in the area from lead that is present in the environment as a result of mining-related activities. The three key aspects of the strategy are source control, long-term remedial control, and an interim program to reduce currently elevated blood-lead levels. The interim program is a multi-agency response which built upon and expanded a pilot program by the U.S. Department of Housing and Urban Development (HUD). The agencies involved in this program include EPA, ATSDR, MDOH, MDNR, St. Francois County Health Department, and HUD (St. Louis University is managing the testing and intervention). The interim program consists of aggressive outreach to test as many children as possible followed with intervention to reduce any elevated blood lead. The removal actions described in this memorandum are part of the interim program to reduce currently elevated children's blood-lead levels.

2. Physical Location

The southeast Missouri Lead Belt is on the northeastern edge of the Precambrian igneous core of the St. Francois Mountains. The Lead Belt is one of the world's largest lead mining districts, having produced more than nine million tons of pig lead. At least 90% of this production has been from the Old Lead Belt within St. Francois County.

A total population of 17,213 was counted for the incorporated areas of the St. Francois County portion of the Old Lead Belt in the 1990 census. The number of children less than seven years old living in the cities of Bonne Terre, Desloge, Elvins, Esther, Flat River, Leadington, Leadwood, and Rivermines was 1,764 in 1990. Figure 1 shows the area considered a part of the Old Lead Belt for the purposes of the Superfund related activities.



Approximate extent of the Superfund activities in St. Francois County, MO. These boundaries are subject to change.

Figure 1

3. Site Characteristics

Much of the mining waste within the area is a result of the physical separation of the lead from the host rocks. The following are the types of lead found within the area.

a. Mining and milling

Ore production consisted of crushing and grinding the rock to standard sizes and separating the ore. Ore processing was accomplished in either dry, gravity, separation or through wet, flotation, separation. Dry processes produced a fine gravel waste, commonly called "chat." The flotation process resulted in the creation of ponds used to settle out material from solution. The wastes from flotation are typically sand and silt size and are called "tailings." Milling resulted in large chat waste piles and flotation resulted in flat areas with tailings deposited some depth below the ground surface. Both of these materials are found in the area.

b. Smelting

Besides the physical separation processes, heat was employed in various ore smelting processes. High temperature processes can change the mineral properties of the wastes when compared with physical ore separation processes. In the Old Lead Belt, early smelting took place in log furnaces and scotch hearths. This and similar forms of smelting were very inefficient and created wastes with relatively high lead concentrations, but the extent of contamination was likely to be small. Around 1880, the Desloge Lead Company developed the western half of US Survey 3099, north of the St. Joe activities in Bonne Terre. As a part of the development, they built a Flintshire furnace to smelt the ore; a fire in March 1886, destroyed the plant and subsequently, the Desloge Lead Company was consolidated with St. Joe. A smelter operated at Doe Run until 1891, and there is literature reference to a smelter operating at Leadwood in 1906. A railroad was completed, circa 1890, from the mining area to the smelter at Herculaneum. This rail access ultimately resulted in the abandonment of smelting operations in the mining area after the turn of the century; offsite smelting was done in Herculaneum and Collinsville, Illinois. Calcining operations which used wood or coal-fired furnaces to drive off sulphur from the ore were still conducted in the area.

c. Other Sources of Lead

Naturally occurring minerals are known to have been present at the surface in various locations. One of the most prominent was the "bonne terre," for which the city was named. According to Thompson¹, the "bonne terre" was a "yellow ferruginous clay as much as eight feet thick to the rock, through which were disseminated shot-like fragments of ore and often masses weighing several pounds. Two men could wash out as much as a thousand pounds

¹ Thompson, Henry C., Our Lead Belt Heritage, reprint, Walsworth Publishing, 1992

of galena a day. This particular area of highly mineralized clay extended for about a mile in length by almost a mile wide and extended from close to the location of the Bonne Terre Railroad depot, northwest for a mile." Other significant surface deposits of minerals occurred along Mine-a-Joe Creek, just west of Desloge, Owl Creek, and along Flat River. These three areas were among the first areas to be mined in about 1750. Beyond the lead from naturally occurring mineral, man's activity has introduced additional sources of lead into the area. These sources include leaded gasoline, lead-based paint, lead and lead solder in plumbing, and other incidental uses of lead.

4. Release or Threatened Release into the Environment of a Hazardous Substance, Pollutant, or Contaminant

Health concerns regarding lead contamination are principally for children below the age of seven years. This group has been found to be the most susceptible to lead toxicity, largely because lead adversely affects the development of the central nervous system and other organ systems. Taking a blood sample and measuring its lead concentrations is the most common way to detect recent exposure to lead and indicates a potential for adverse health effects. According to the U.S. Centers for Disease Control and Prevention (CDC), a blood lead concentration of 10 $\mu\text{g}/\text{dl}$ presents a health concern. The CDC uses the term "intervention" to mean a health professional initiated action to correct the exposure a child is receiving; this often starts with discussion with the child's parents to advise and educate them on the hazards of lead so the parent can take action to reduce the risks. The current CDC action levels are as follows:

- Less than 10 $\mu\text{g}/\text{dl}$ -- No action;
- 10-14 $\mu\text{g}/\text{dl}$ -- No interventions for individual children²; community-wide primary prevention activities when many children in a community are in this range;
- 15-19 $\mu\text{g}/\text{dl}$ -- Individual case management, including nutritional and educational interventions and more frequent blood-lead screening. If elevated blood-lead levels persist, environmental investigation, including a home inspection should be offered; and
- 20 $\mu\text{g}/\text{dl}$ and above -- Individual medical evaluation and intervention and the source of lead exposure located and removed.

² The State of Missouri procedures include further blood lead testing and case management for children tested between 10 and 14 $\mu\text{g}/\text{dl}$ blood lead.

The national average blood-lead level among children has dropped dramatically over the last 50 years. According to the CDC, the average child's blood-lead level in the 1930s was more than 30 µg/dl. Table 2, below, summarizes the national blood-lead trends. A country-wide baseline testing of 9,832 people (2,271 young children between the ages of 1 and 5) was made in 1976 to 1980 for the National Health and Nutrition Examination Survey (NHANES). The baseline testing showed that young children in this country had an average blood lead of 15 µg/dl. NHANES tested another 12,119 individuals (2,234 young children) in 1988 to 1991 and 13,642 (2,392 young children) in 1991-1994. The second testing showed the average blood lead for the young children had dropped to 3.6 µg/dl and in the third round of testing, the average had dropped to 2.7 µg/dl. The decline in the use of leaded gasoline, lead-based household paint, lead in soldered food and drink cans, and lead in plumbing are principal reasons for the decline. In the baseline survey of 1976 to 1980, about 88% of the young children had blood leads greater than 10 µg/dl and this had dropped to 9% in the 1988 to 1991 survey and 4.4% in 1991-1994. The data from NHANES is strongly weighted to urban settings and does not reflect the rural nature of St. Francois County. Children living in urban settings are generally more likely to have lead exposure problems.

Table 2
Blood Lead Trends in the United States

National Average Blood Leads (µg/dl)				Percentage above 10µg/dl			
1930s	Late 1970s	Late 1980s	Early 1990's	1930s	Late 1970s	Late 1980s	Early 1990's
30	15	3.6	2.7	N/A	88%	9%	4.4%

As previously mentioned, the MDOH study included sampling children's blood, sampling environmental media (such as soil and dust), and questioning the residents about their lifestyle as it related to lead exposure. The study compared the information in the Old Lead Belt of St. Francois County to information collected during the study on a control area (Salem, Missouri) located outside the area of concern. In the Old Lead Belt, about 17% of the children tested showed a blood lead level of more than 10 µg/dl whereas only about 3% of the children in Salem were elevated. The 17% elevation in the Old Lead Belt children is broken down to about 13% between 10-14 µg/dl, 3% between 15-19 µg/dl, and 1% above 20 µg/dl. Applying these percentages to the incorporated areas from the 1990 population (see Table 1 above), the estimated number of children in these categories would be about 300 children above 10 µg/dl, 230 between 10-14 µg/dl, 50 between 15-19 µg/dl, and 20 above 20 µg/dl.

The EPA remedial action goal for Superfund cleanups of lead sites is that a child in the area would not have more than a 1-in-20 (5%) chance of having a blood-lead concentration greater than 10 µg/dl. As noted from the preceding discussions, this level corresponds to the CDC action level for instituting a community-wide program and is below a level that would trigger medical intervention.

5. NPL Status

There are six large abandoned tailings piles in St. Francois County. The EPA listed one of these sites, the Big River Mine Tailings Site, on the NPL on October 14, 1992. This pile is also referred to as the Desloge Pile. This proposed action would address residential areas adjacent to these six piles.

6. Public Involvement

Early community involvement has been stressed for the Superfund actions in the Old Mining Belt. During the development of the non-time critical removal for the Big River Mine Tailings Site, the EPA developed a Community Relations Plan. In addition, an unchartered group (Environmental Round Table) consisting of representatives from the PRPs, the State, the EPA, local government agencies, citizens, and the Minerals Area Community College started meeting monthly in the fall of 1994 to discuss environmental activities in the area. The Round table has sponsored availability sessions to allow the public the opportunity to discuss issues. Public Availability sessions have also been sponsored by both EPA and the MDOH on specific issues.

A Community Advisory Group (CAG) was also formed, called the St. Francois County Mine Waste Coalition. The CAG received an EPA TAG grant to facilitate public participation and distribution of information. The CAG provides a means for local involvement in cleanup alternatives development and carrying out response actions. The group discusses varied cultural and political issues related to the cleanup including the reluctance of many locals to accept that there may be a problem, property value depression because of potential liability concerns, stigma having been designated as a Superfund site, disruption of lifestyles during response actions, economic impacts of construction, and review of response actions and investigations. This diverse group of about 12-15 people represents various community interests. The CAG is in the process of hiring a consultant who will provide technical review of documents that EPA provides.

B. Other Actions to Date

1. Previous action

Previous actions have included Site Screening Inspections for individual piles which includes the following:

Bonne Terre	September 1994
Elvins	September 1994
Federal	February 1994
Leadwood	September 1994
National	September 1994

2. Current Actions

In addition to reducing the exposure of children to lead, EPA is also concerned with reducing the ongoing release of lead materials from mine waste areas. These releases not only exacerbate children's exposures to lead, but also threaten ecological resources. In 1995, the parties potentially responsible for site contamination entered into an administrative order on consent to perform a non-time critical removal action to stabilize the mine wastes at the Desloge site. They are regrading the slopes of the tailings pile, which will improve the structural stability of the pile and prevent tailings from sloughing into the river. Other cleanup actions include covering and revegetating to control wind and water erosion and providing rock slope protection at the waterline to prevent undercutting by the river. In 1996, construction work started on the area furthest upstream; five of seven areas have been completed, except for revegetation.

Besides the Desloge site, five other major mine waste areas in the region have been documented to have contaminant releases and will also be controlled through non-time critical removal actions. An engineering evaluation/cost analysis (EE/CA) was completed for stabilization at the Federal Tailings Pile in July 1996 and the State of Missouri is completing the work. An EE/CA was started in February 1997 for the Bonne Terre Mine Tailings, another EE/CA for additional work at the Federal Mine Tailings Site was started in September 1997, and an EE/CA for the National Tailings Pile is being initiated. The PRPs are accomplishing these actions under administrative orders on consent with EPA which address source releases from the mine waste areas. In addition, the PRPs entered into an administrative order on consent in January 1997 under which they are doing a focused remedial investigation and feasibility study (RI/FS) to evaluate the human health and ecological impacts on areas surrounding and between the mine wastes areas. The efforts to reduce the risks posed by mine wastes in this large region will require many years to complete.

C. State and Local Authorities' Role

Until the long-term cleanup has been implemented, children's health will be protected through a combined effort by EPA, MDOH, ATSDR, St. Francois County Health Department, the PRPs, and the local community. Central to this interim program is enhanced education, blood-lead testing, and home intervention designed to reach as many of the area's children as possible; soil replacement is one aspect of home intervention. The MDOH Exposure Assessment supports the concept that blood-lead concentration can be reduced through various actions

including: yard soil remediation, lead-based paint controls, in home cleaning, and education. The interim control strategy is focused on homes with children under the age of seven. This multi-agency involvement is anticipated to continue at least until the implementation of a final remedy.

III. THREAT TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY REGULATORY AUTHORITIES

Section 30.415(b) of the National Oil and Hazardous Pollution Contingency Plan (NCP) provides that EPA may conduct a removal action when it determines there is a threat to human health of the environment based on one or more of the eight factors listed in Section 300.415(b)(2). The factors which justify a removal action on this site are the following:

A. Threats to Public Health or Welfare

Actual and potential exposure of nearby populations to hazardous substance are documented in that elevated concentrations of lead have been found in yards of residences with young children. The MDOH study also demonstrated that children living in this area are more likely to have elevated blood-lead concentration when compared to a similar rural community.

High levels of hazardous substances in soils, largely at or near the surface, that may migrate are confirmed in that lead has been detected in surface soils above levels that contribute to lead exposure in the child's environment. Lead contaminated soils may migrate via airborne dusts, surface runoff, and perhaps most significantly, by children, adults, or pets tracking soil into the home.

B. Threats to the Environment

The threats to the environment from releases at the residential yard are far outweighed by the releases from the sources in the area which are being addressed by other response actions. Therefore, this aspect is not a substantial part of this action memorandum decision.

IV. ENDANGERMENT DETERMINATION

Actual or threatened releases of hazardous substances from this site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

V. EXEMPTION FROM STATUTORY LIMITS

Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal and the CERCLA section 104(c) consistency exemption from the 12-month limitation. Continued response beyond the 12-month limitation is appropriate and consistent with anticipated remedial actions.

VI. PROPOSED ACTIONS

A. Proposed Action Description

1. Trigger and Cleanup Levels for Soil Remediation

The proposed action will target lead-contaminated soils located at residential yards. Soils actions will occur when any one of the following three criteria is met:

- If a resident child (less than 72 months of age) at the home has a blood-lead concentration of between 15 and 19 µg/dl, remedial action on the lead sources will be prioritized and selected for action based on the relative threat. These actions could include, but are not limited to the following: lead-based paint stabilization, replacement of lead containing mini-blinds, and individual yard soil work. At least one step of the prioritized work will be started. If no suspect media other than soil is present, then EPA will decide to initiate soil action if contaminated soil is contributing to the blood lead elevation. This decision will be made after consultation with ATSDR, the HUD team, St. Francois County Health Department, and the Missouri Department of Health;
- A resident child (less than 72 months of age) at the home has a blood-lead level greater than 20 µg/dl, then EPA will decide to initiate soil action if contaminated soil is contributing to the blood lead elevation. This decision will be made after consultation with ATSDR, the HUD team, St. Francois County Health Department, and MDOH;
- If other interventions stop or the child's blood lead remains elevated above 10 µg/dl after three quarters of interventions, then EPA will decide to initiate soil action if contaminated soil is contributing to the blood-lead elevation. This decision will be made after consultation with ATSDR, the HUD team, St. Francois County Health Department, and MDOH.

When soil actions are taken, they will be tailored to the individual yard depending on the likely exposure sources. Emphasis will be on measures such as seeding or sodding bare spots in the yard, bringing in clean soil, replacing playbox sand, using landscaping mulch or rocks, planting shrubbery, and other measures that would break the exposure pathway. Soil removal

would only be used when the other yard techniques are not anticipated to be effective or feasible. Because, recontamination of remediated yards may be a significant problem, source control remains a very high priority to ultimately control the area's lead problem.

2. Relationship of EPA Soil Action to the Overall Interim Program

The following discussion describes the overall measures to be taken during the Interim Program. These measures will be supplemented with the soil remediation techniques described in the previous section on Trigger and Cleanup Levels for Soil Remediation. Testing the blood lead of children is the most common method to measure for potential health risks in children. Testing as many children as possible with follow-up measures to reduce the blood lead of any child measured above 10 $\mu\text{g}/\text{dl}$ is important to the interim program. An initial set of children was identified through ongoing county health testing programs and the children who participated in the Exposure Study.

A public information program encourages parents to have their children under the age of seven tested (a family physician or St. Francois County Health Department can do the testing.) After the initial backlog of cases are addressed, a team from St. Francois County Health Department will be visiting homes on a block-by-block basis to make testing as convenient as possible for parents. The team will consist of a nurse educator and an environmental public health specialist. A nurse and an environmental/health specialist will perform the block-by-block testing. They will visit each house on the block letting parents know of the screening and the education. Each parent will be provided written material on techniques to provide protection of their children against lead poisoning and the parents will be encouraged to have their child's blood-lead measured. If no one is at home, material will be left to advise the residents on alternate means to have their child tested. The block-by-block testing will be prioritized by homes built before 1950 (research has shown that children in older homes are more likely to encounter blood lead problems) and by homes closest to mine waste piles (more likely to encounter dust and soil problems.) A method to identify and reach newcomers to the area and newborn babies will also be developed to provide continuity over time.

The results of the blood-lead testing will establish the priorities for action. If the child's blood lead is above 10 $\mu\text{g}/\text{dl}$ follow up will be started with the child to reduce their blood-lead concentration. Based on the outcome of the individual test, the following actions will occur:

- There will be no in home intervention activities for children with blood-lead levels less than 10 $\mu\text{g}/\text{dl}$. Parents of these children will be given the results in writing with a recommendation that the child returns for a follow-up visit in six months. This will be followed by a letter that will remind the parents that children's blood-lead levels can fluctuate and, therefore, it is important to have children retested after six months;

- For children with blood lead levels between 10 and 14 $\mu\text{g}/\text{dl}$, paint and dust source assessment within and outside the homes of the children will be done. Parents will be provided with feedback on potential risk and techniques to reduce the risk. The team will return to the home for follow-up visits quarterly. Professional cleaning (level I intervention-- see the detail description of the intervention levels in Appendix A) every quarter will be performed on the homes with clearance samples required for verification of cleaning effectiveness. The intervention is more aggressive than recommended by the CDC, but is justified on because of the dual pathway issue with mining and paint lead sources. Activities will continue until blood lead levels are brought to below 10 $\mu\text{g}/\text{dl}$ for three consecutive quarters;
- To reduce blood-lead levels of children with levels between 15 and 19 $\mu\text{g}/\text{dl}$, all of the steps outlined in the previous paragraph will be performed. In addition, level II interim controls (see Appendix A) to address interior lead problems will be implemented. Activities will continue until blood-lead levels are brought to below 10 $\mu\text{g}/\text{dl}$ for two consecutive quarters; and
- For children with blood-lead levels 20 $\mu\text{g}/\text{dl}$ or higher, all of the practices listed for the 15 to 19 $\mu\text{g}/\text{dl}$ levels will be performed and in addition the children will be referred for medical management and level III and IV (see Appendix A) will be implemented. Quarterly program elements will continue until the child's blood-lead level falls below 10 for two consecutive quarters.

The team of environmental and health professionals will review the individual home intervention strategies on a regular basis. As previously mentioned these techniques will be supplemented with the soil remediation techniques described in the previous section on Trigger and Soil Cleanup Levels.

Except for the yard soil remediation, these procedures were developed as a part of the grant awarded to the MDOH from HUD. Approximately \$1 million of the \$2 million grant will be used in the areas of concern in St. Francois County. For those children from families that meet the income-guidelines of HUD, the above intervention activities (except for the soil) are funded from the HUD grant. The Doe Run Company is providing funds for the program for families not meeting the HUD income guidelines, for soil testing on all homes, and has indicated a willingness to implement the soil removals. All of these actions are targeted to the impacts associated with the former mining activities.

Soil excavated from the residences would be disposed in a designated Corrective Action Management Unit (CAMU) or would be tested for RCRA toxicity and disposed in a facility approved to receive the wastes. Any soil deposited in a CAMU would be revegetated or covered to prevent erosion. The maximum volume of soil per residence, based on similar projects in the region, is estimated at 300 cubic yards.

A QA/QC Plan for the residential soil sampling has been prepared and is approved.

3. Description of Alternative Technologies

Ultimately, the RI/FS and risk assessment process will quantify the long-term threat posed by residential yard soils in the area and a Record of Decision will be made. Phosphate treatment of the yard soils was considered as a potential technology. The most recent findings from treatability studies on Jasper County soils only show a reduction in absolute bioavailability from 30% in untreated soils to 22% in the phosphate treated soil from test plots. This marginal reduction while providing some improvement, would not provide a confident reduction in children's blood lead. This technology may be further reviewed in the RI/FS. This use of phosphate additions has proved to be effective in stabilizing soils that do not pass Toxicity Characteristic Leachate Procedure (TCLP) testing for lead and could be potentially used if offsite disposal of materials is necessary.

4. Contribution to Remedial Performance

This site is currently undergoing a RI/FS. A final remedy (and corresponding cleanup level) has not been selected. The proposed action, however, is expected to be consistent with the final remedy to be chosen for the site.

5. Applicable or Relevant and Appropriate Requirements

The NCP at 40 C.F.R. Part 300.415 requires that removal actions shall, to the extent practicable, considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal environmental, state environmental, or facility-siting laws. The potentially applicable requirements for this action are the following:

- Subtitle D of RCRA, Section 1008, Section 4001, et seq., State or Regional Solid Waste Plans, and implementing federal and state regulations.
- Occupation Safety and Health Act, 29 C.F.R. Part 1910
- Subtitle C of RCRA, 42 U.S.C. Section 6901, et seq., 40 C.F.R Part 260, et seq., and implementing federal and state regulation for contaminated soils that exhibit the characteristic of toxicity and considered RCRA hazardous waste.

Subtitle C of RCRA is potentially applicable for the removal of soils contaminated with lead of unknown origin. However, soils contaminated with lead from extraction, beneficiation, or processing of ores are exempt from the requirements of RCRA, Subtitle C pursuant to the Bevill amendment, Section 3001 (b)(3) (A) of RCRA, 42 U.S.C. Section 6921(b)(3)(A), and implementing regulations, 40 C.F.R. §261.4 (b) (7).

- 40 C.F.R Subpart S - corrective action for solid waste management units and temporary units. The EPA Region VII may designate the soil repository area as a corrective action management unit or a temporary unit pursuant to 40 C.F.R. §264.552 and §264.553. Such designation may be made by the Regional Administrator upon determination of the location of the repository.

A copy of this action memorandum will be provided to state personnel along with a written request for the identification of known potential state ARARs. Their written response is expected to be received within 30 days of the request. These ARARs will be evaluated per EPA guidance on consideration of ARARs during removal actions.

6. Project Schedule

The multi-agency interim program has started and interventions with numerous children are underway. The need to do soil work is currently being assessed for these first children. The residential removals under this Action Memorandum would continue until a Record of Decision is made for the long-term remediation.

B. Estimated Costs

Current costs of complete remediation of typical-sized residential yards in other Superfund sites in the Region range from about \$11,000 to \$15,000 per yard. Cost for the action in this Memorandum would be less because specific areas in the yards will be targeted for remediation. Less than 5% of the homes are initially expected to be triggered for yard remediation. Given the maximum number of children in the area with elevated blood lead is estimated at 300, this only represents about 15 homes for the soil triggers during the interim program. The PRPs have indicated that they would likely use their own work force to do the work and their costs are unknown.

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will increase public health risk to the children through exposure to airborne and ingested contaminants.

VIII. OUTSTANDING POLICY ISSUES

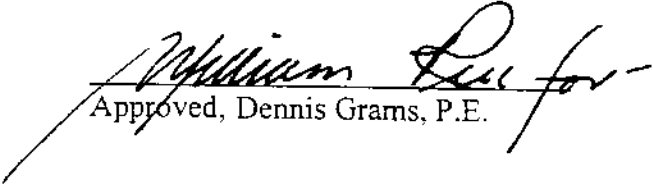
None

IX. ENFORCEMENT

The EPA anticipates entering into an administrative order on consent with the PRPs to accomplish this work.

X. RECOMMENDATION

This decision document represents the selected removal action for residential areas within the St. Francois County Mining Area. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the site. Conditions at the site meet the NCP Section 300.415(b)(2) criteria for a removal action.


Approved, Dennis Grams, P.E.

3/12/98
Date

Attachment

Appendix A

HUD Grant Intervention Techniques

A In-Home Assessment

In home assessments will be done for children with blood lead levels greater than 10 $\mu\text{g}/\text{dl}$. The assessments will include:

- Sampling will be done in the child's bedrooms and up to two primary play areas.
- A questionnaire will be completed.
- Another blood lead test will be made.
- X-ray Fluorescence (XRF) lead-based paint assessment to detect the presence of lead in paint.
- Composite wipe sample of window sills from up to four operable windows selected among rooms assessed.
- Composite wipe sample of up to four hard surface floors or carpeted areas under or near friction surfaces selected from rooms assessed.
- Observational assessment of lead-based paint surface conditions.
- Questionnaire administration for demographic and behavioral factors.

B Quarterly Follow-Up Visits

Quarterly visits are planned for homes in which children have blood lead levels greater than 10 $\mu\text{g}/\text{dl}$. During quarterly follow-up visits, the following will be done:

- Questionnaire
- Blood lead sample
- Visual observation of surfaces with lead paint
- Wipe samples in same places sampled in previous visit(s). If this is a Level I intervention home, wipe samples will be taken just prior to professional cleaning and again just after cleaning for intervention levels II through IV, the quarterly follow-up visit will follow the date the intervention is performed.
- Wipe samples for clearance following intervention in the same areas previously tested, areas where intervention was performed, and other areas of the home the assessor deems necessary, if any
- Oversight by assessor to ensure work is performed completely and appropriately.

C Intervention Levels

The levels of intervention usually are cumulative, for example, level II work assumes inclusion of Level I work. This multi-step approach enables the project team to logically identify families and households with the greatest need and to spend funds wisely to get the greatest result. It is recognized that based on home specific evaluations, there will be variations and exceptions.

- **Level I** - Cleaning activities outlined in Chapter II of the HUD guidelines. These include High Efficiency Particulate (HEPA) vacuuming, steam cleaning, wet cleaning, use of lead specific cleaners or trisodium phosphate detergents. Interior composite dust wipe samples of floors, windowsills and window troughs will be taken before and after cleaning to verify the clearance standards.
- **Level II** - Paint film stabilization activities will be defined following HUD guidelines and will be conducted in addition to Level I activities. These include repairs, proper surface preparation, and appropriate application of compatible paints and primers based on visual inspections.
- **Level III** - Friction and impact surface treatment activities will follow HUD guidelines and be implemented in addition to work described in the first two levels. These include window repairs, channel and well inserts, door painting and repair, baseboard replacement, wall corner bead installation, stair surface guard coverings, and drawer/cabinet treatment.
- **Level IV** - Hazard abatement and removal activities will build on work completed for the first three levels and include building component replacement, enclosures, encapsulants, and on site or off site paint removal.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY 26

REGION VII
901 NORTH 5TH STREET
KANSAS CITY, KANSAS 66101

MAR 31 2000



S00109200
SUPERFUND RECORDS

MEMORANDUM

SUBJECT: Request for an Amendment to the Action Memorandum (signed March 12, 1998, by Dennis Grams) for the Removal Action for St. Francois County Mining Area, St. Francois County, Missouri

ACTION MEMORANDUM/ENFORCEMENT AMENDMENT

FROM: Jack D. Generaux, Remedial Project Manager
FFSE/SUPR

TO: Carol Kather, Acting Director
SUPR

Site ID# 07CR
Category of Removal Time Critical
CERCLIS ID # MOD981126899
Nationally Significant/Precedent Setting No

I. PURPOSE

This amendment to the Action Memorandum for St. Francois County Mining Area, St. Francois County, Missouri, signed March 12, 1998, (attached as Attachment 1) requests approval for a time-critical removal action. The action would include replacing or covering contaminated soils around the residences of young children with elevated blood-lead levels, blood-lead screening to continue to identify children at risk and the establishment of a soil repository at the Big River Mine Tailings Site at Desloge, Missouri. The scope of the proposed amended Action Memorandum includes the mine waste-affected areas of St. Francois County, Missouri, as shown on Figure 1. Work will be performed by the Potentially Responsible Parties (PRPs) with Environmental Protection Agency (EPA) oversight. The proposed removal is a part of EPA's response for the St. Francois County Mining area including the Big River Mine Tailings Site which is listed on the National Priorities List.

The Action Memorandum is proposed to be amended because the multi-agency/voluntary PRP response program to the blood-lead problems is ending and a need to protect the area's children from lead threats will continue until EPA has decided and implemented the long-term remedial actions. A principal component of the response program to date was addressing lead-based paint issues both inside and outside the homes. Because EPA does not have specific

authority to address lead-base paint in these situations and the PRP has indicated they are unwilling to voluntarily continue funding paint remedies, the Action Memorandum criteria for removal are proposed to be changed to emphasize protections through additional soil removals. However, the blood-lead testing program and education components of the program, including cleaning instructions, will be continued.

II. AMENDMENTS TO THE ACTION MEMORANDUM

The following four sections of the Action Memorandum are proposed to be amended:

- Section VI. A. "Proposed Action Description" of the Action Memorandum is amended to read as follows:

A. Proposed Action Description

1. Residential Areas

a. Soil Testing and Removal Program

Soils will be tested starting at the periphery of the mine waste areas, historic mining/milling/processing facilities, and historic haul routes, such as rail lines. Sampling will proceed in an outward pattern at roughly the same rate for each source

- (1) Soil removal will be conducted on *any* yard with an average yard soil-lead concentration (based on the four composite samples) of greater than 2,000 parts per million (ppm). All areas of the yard greater than 400 ppm soil-lead concentration will be excavated to a depth of 12 inches and be replaced with clean fill having a total lead concentration of no more than 240 ppm. If the soil-lead concentration is greater than 400 ppm at 12 inches of depth, a construction barrier will be placed before backfilling the area.
- (2) Soil removal will be conducted on any yard having a child with a blood-lead concentration of greater than 15 µg/dl (or blood-lead concentration greater than 10 µg/dl after three quarters of rescreening) and having an average yard soil-lead concentration of greater than 400 ppm. All areas of the yard greater than 400 ppm soil lead concentration will

be excavated to a depth of 12 inches and be replaced with clean fill having a total lead concentration of no more than 240 ppm. If the soil-lead concentration is greater than 400 ppm at 12 inches of depth, a construction barrier will be placed before backfilling the area.

- (3) In addition to the preceding soil removals, "hot spots" greater than 2000 ppm will also be removed and replaced with clean fill. "Hot Spots" include areas of the yard such as drip-line soils not attributable to exterior lead-based paint, driveways suspected to be chipped, gardens, under swing sets, sand boxes, and other obvious play areas.

b. Blood lead testing and other response actions

A blood-lead testing and an education program for distribution of material to the area's residents will be provided. For all homes visited, no matter whether a child was tested or present, EPA-approved educational material will be provided to the resident.

For any child residing in the response area with a blood-lead concentration greater than or equal to 10 $\mu\text{g}/\text{dl}$ (identified by either testing program or through other testing programs), actions will follow the decision tree shown in Figure 2.

- c. A High-Efficiency Particulate Air vacuum loan-out program will be provided for the area residents.
- d. A repository for mine wastes and soils removed as a part of this action and future soil removals will be established at the Big River Mine Tailings Site, Desloge, Missouri.

- Section VI. A. 2. "Relationship of EPA Soil Action to the Overall Interim Program" is deleted entirely. The actions described in this original section are now covered in the amended Section VI.A.1 above.
- Section VI.A.6. "Project Schedule" is amended to read as follows:

6. Project Schedule

The residential removals under this Action Memorandum would continue until a Record of Decision is made for the long-term remediation.

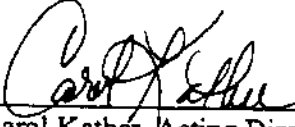
- Section VI. B. "Estimated Costs" is amended to read as follows:

2. Estimated Costs

Current costs of remediation of typical-sized residential yards in other Superfund sites in the Region are about \$10,000 per yard. Cost for the action in this Action Memorandum would be expected to be comparable. If 80 yards were assumed to meet a trigger criterion per year, the cost would be \$800,000 per year plus the cost of the blood-lead screening/education/cleaning program estimated at \$150,000 per year.

No other amendments are proposed to the Action Memorandum.

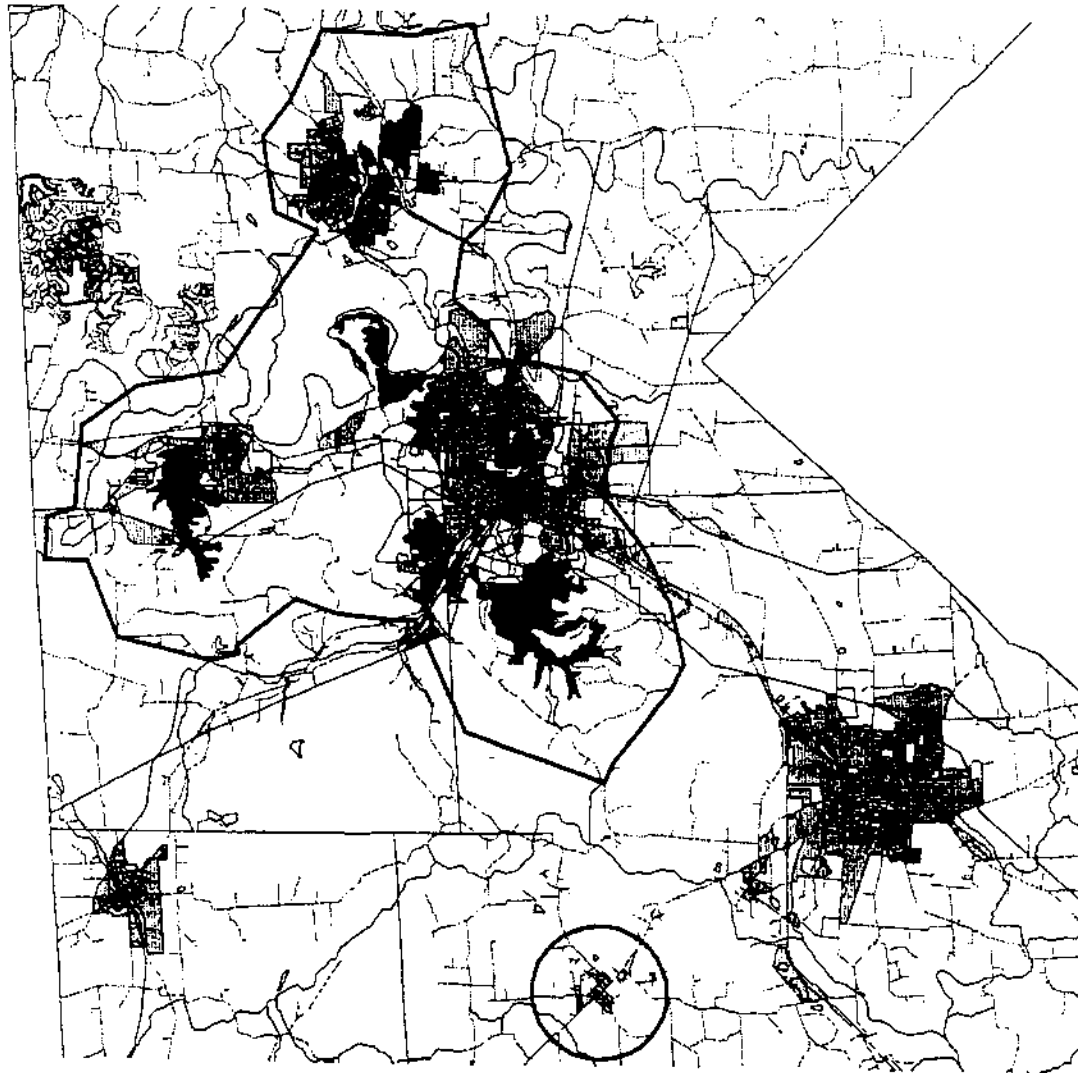
Approved:



Carol Kather, Acting Director
Superfund Division

3/31/00
Date

St. Francois County Mine Tailings Sites Response Area



1 0 1 2 Miles

A horizontal scale bar with alternating black and white segments, representing distances of 1, 0, 1, and 2 miles.

Figure 1

Decision Tree for Intervention Process

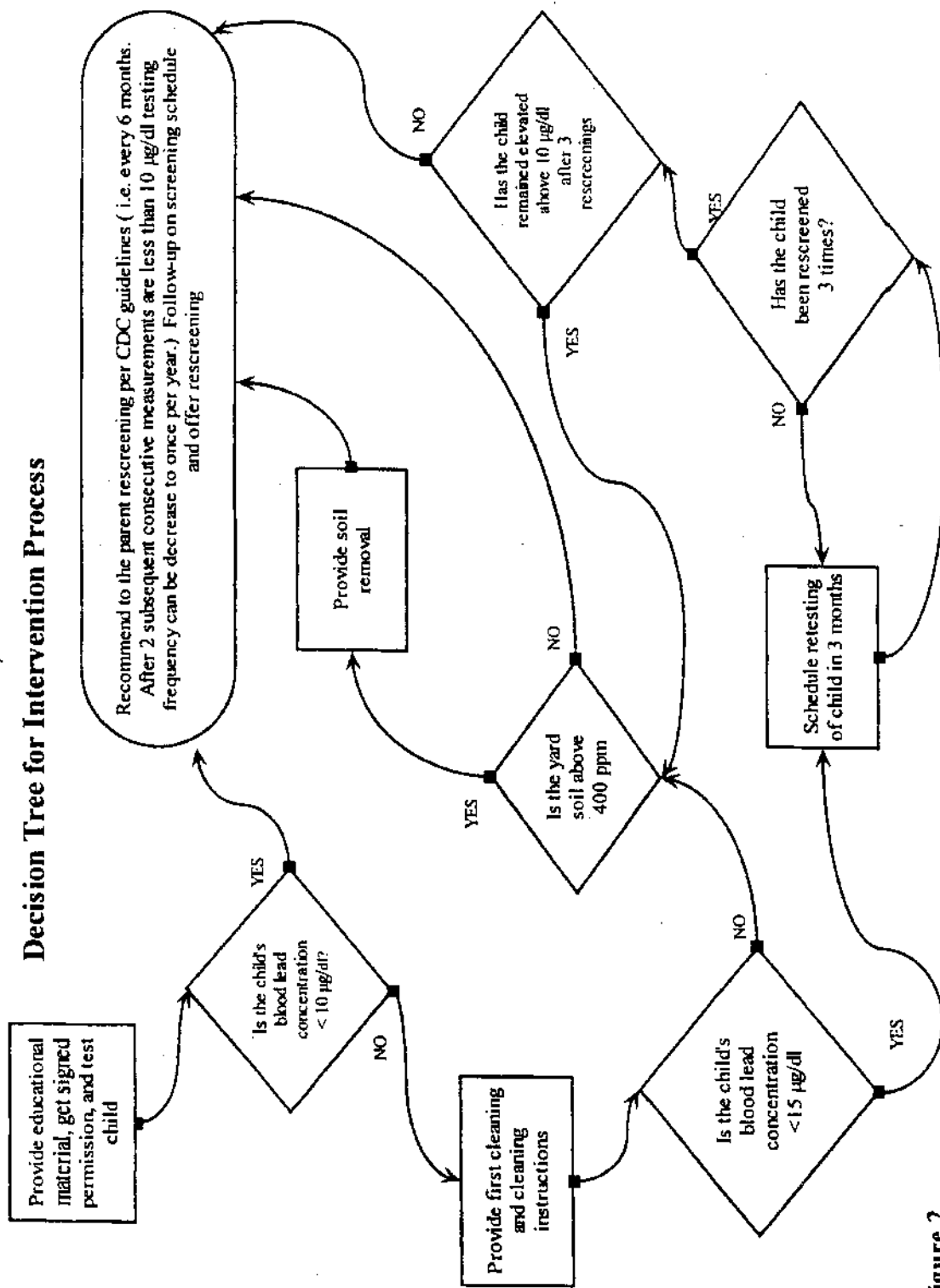


Figure 2